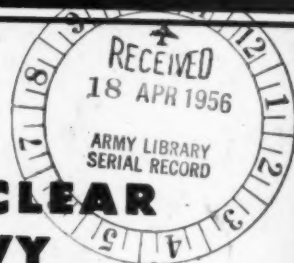
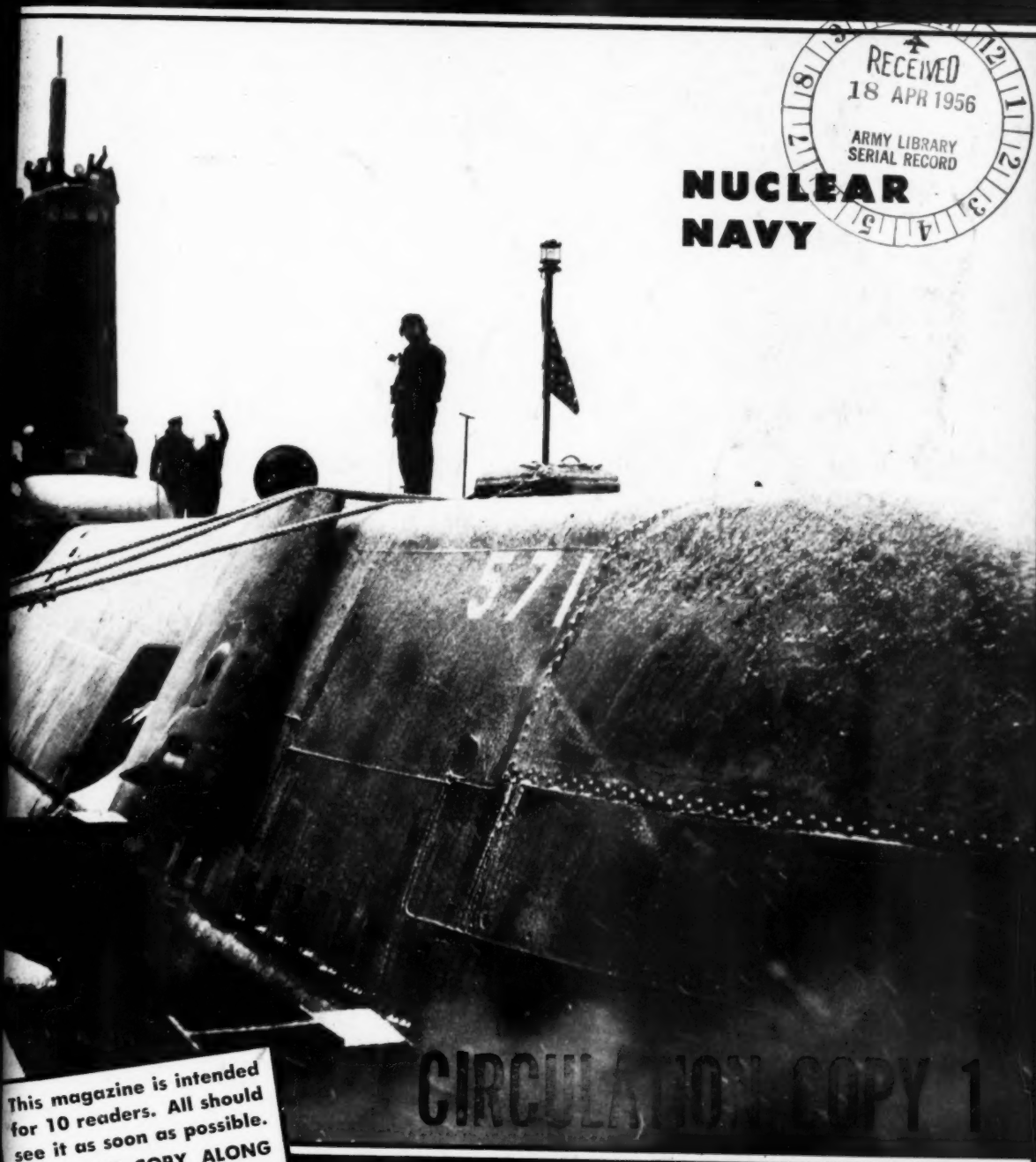


ALL HANDS

BUREAU OF NAVAL PERSONNEL

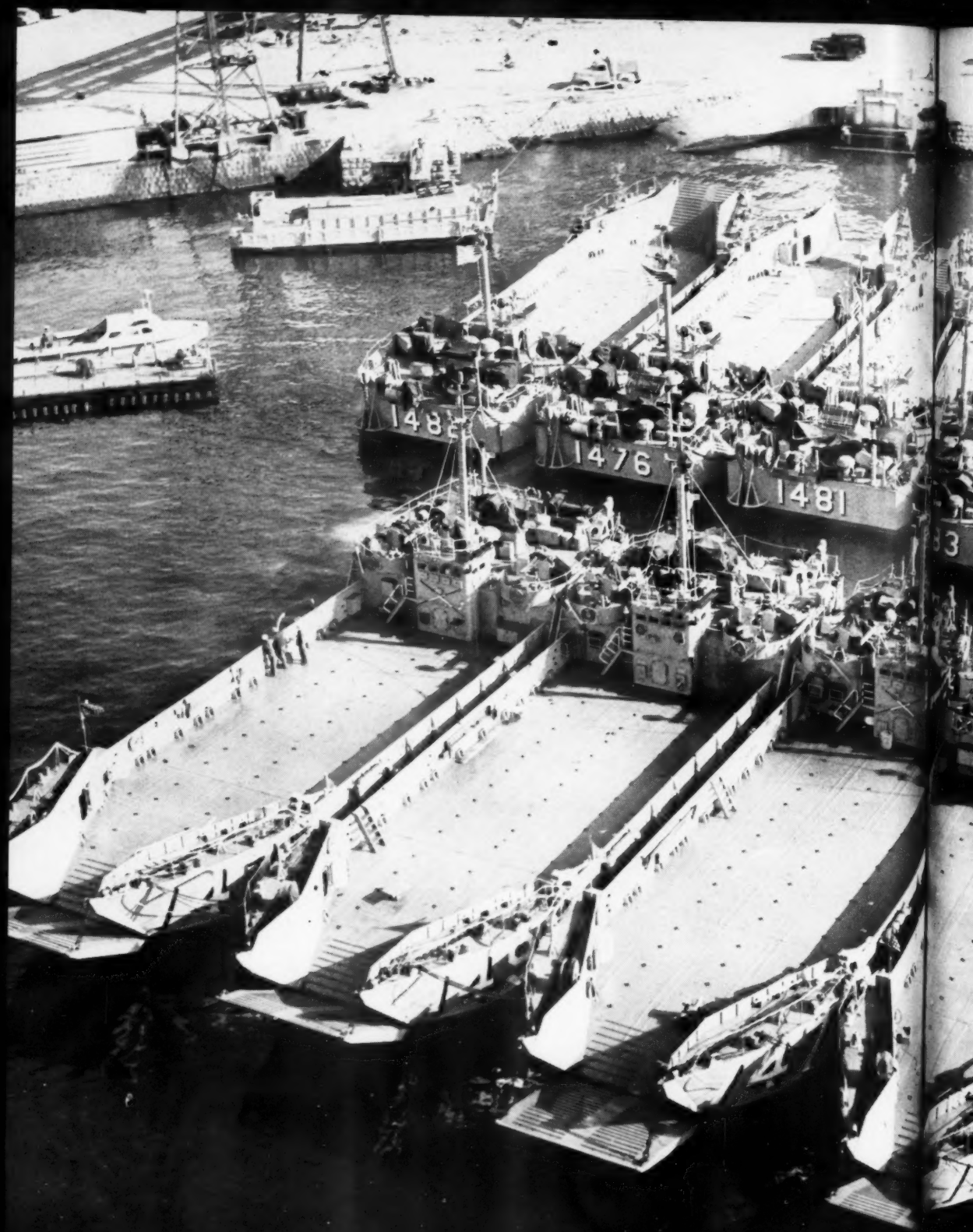


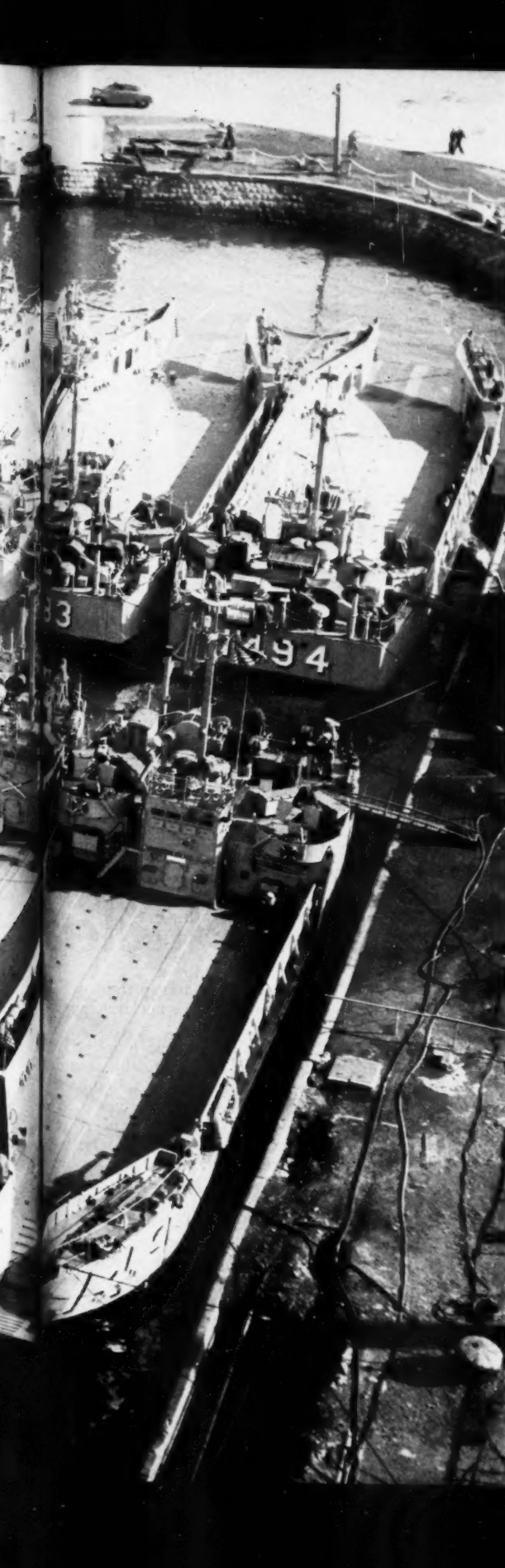
**NUCLEAR
NAVY**



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for 10 readers. All should
see it as soon as possible.
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ALL HANDS

THE BUREAU OF NAVAL PERSONNEL INFORMATION BULLETIN

APRIL 1956

NavPers-O

NUMBER 470

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The Deputy Chief of Naval Personnel

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• **FRONT COVER:** BIG SWEEPED-DOWN BOW of Navy's nuclear powered USS Nautilus (SSN 571) has already plowed through 29,000 miles of ocean. Talker on forward deck gives preparatory orders to get underway.

• **AT LEFT: WITH THEIR MOUTHS OPEN**—like Jonah's whale—utility landing craft are lined up at their float aboard U.S. Fleet Activities, Yokosuka, Japan. They're assigned to LCU Squadron 1, Division 12.

• **CREDITS:** All Photographs published in ALL HANDS are official Department of Defense photos unless otherwise designated. Cover photo and pictures of personnel of USS Nautilus (SSN 571) by John J. Krawczyk, FT1, USN. Nuclear Power School photos are by Walter E. Zesk, J01, USN.



NUCLEAR SNOW JOB — Crew members of USS *Nautilus* (SSN 571) gather topside near the bow of their famous sub

School for Navy's Nucleara

THE ATOMIC AGE NAVY is here, and nowhere in the Navy is that fact more pronounced than in New London, Conn., headquarters of the Atlantic Fleet Submarine Force, and at present the home of *uss Nautilus* (SSN-571), the world's first nuclear powered submarine.

While *Nautilus*, which in a short space of time has become even more famous than the "Mighty Mo" or the equally famous *uss Lexington* (CVA 16) of World War II, is at present the most talked-of example of advance along nuclear lines, there is another and equally important first in operation at New London—the first nuclear power school at a naval base.

Until the school opened in January of this year, Navy men entering this new and expanding field,

received their training at two Atomic Energy Commission establishments under the supervision of civilians.

Now the Navy school, located in the middle of the Submarine Base at New London, is proceeding under a full head of steam. At present, 14 enlisted students and six officers are undergoing the first course under the tutelage of nearly that many instructors, many of whom are ex-crew members of *Nautilus*.

Future classes at the Nuclear Power School will be larger, with 66 students scheduled to attend the next session. Original plans called for the next class to number 60, but it was raised for an unusual reason. It seems the increase was required because the number of men selected for promotion to officer status or to attend the officer candidate school

is unusually high among those who make the grade in the nuclear energy program.

To best illustrate the point, take the number of men originally aboard *Nautilus*. Approximately 95 enlisted men were aboard for duty at her commissioning and at present 15 of those men have either been selected for warrant, LDO, or OCS.

There is nothing spectacular about the school from the outside. It is merely another brick building on the Submarine Base. The only outward difference is the sign which proclaims it the U. S. Navy Nuclear Power School. The classrooms are distinguished by the lack of standard Navy mock-ups, charts and training aids, for the subject is not one which lends itself to this educational technique. Much of the

simple. The reasons and the know-how required to run a reactor and be ready for all the emergencies that might arise present many heretofore unknown problems.

While the problems are different from any ever before encountered by Navymen, the students at the school aren't radically different from the rest of the men who wear the Navy uniform, unless it is in the fierce drive and determination that keep them up, on their own, studying long after the rest of the station lights have gone out.

They know, as does everyone at the New London base from admiral to seaman, that they are pioneering. They have a chance that will never come again, that of being the first navymen trained by the Navy for the vital and important job of manning the ships of the future, the nuclear powered submarines that hold forth a promise of being the ultimate in the submariner's dream, for *Nautilus*, *Seawolf* (SSN 575) and the other 13 nuclear powered submarines already authorized can stay submerged almost indefinitely.

The present group of enlisted students range from second class to chief petty officer, while the officers are either lieutenants, junior grade, or lieutenants. They know in the near future they may have the job of training the men who follow in their footsteps, for as sure as day follows night the school will grow as the number of nuclear powered submarines grow. As they learn from the first men, so shall the future submariners learn from them.

Almost without exception the students at the Nuclear School are career men who see the training as a

chance to get in on the ground floor, a chance to grow up and prosper in a Navy that will be a totally different Navy, in concept, striking power and scope.

While most of the men are married and have children, they have entered into the nuclear program with no hesitation, with an enthusiasm seldom encountered. They are anxious to get aboard a boat which will give them a chance to exploit their knowledge. At this stage, only two months after the school's beginning, that opportunity is a long way off, for following their basic instruction at New London, the students will head to either Idaho Falls, Idaho, or West Milton, N. Y., for another six months, during which they actually operate a land-based prototype reactor.

The prototype at Idaho Falls is of the same type employed aboard *Nautilus*, while the one at West Milton is the type which is destined to make its naval appearance aboard *Seawolf*. The *Seawolf's* reactor will differ from that now in use aboard *Nautilus*. The prime difference will be in the fact that a liquid metal, sodium, will be used in the primary loop rather than the water. Sodium will run through the reactor, then through a heat exchanger where it turns water into steam to drive the turbines. There are many other ramifications of the differences between the two which make it necessary for the students to split up between the two prototypes. (For a sample of how a submarine's nuclear power plant operates see pages 32 and 33.)

The nuclear school is a good place to get some erroneous notions about

ous sub a look at a New England snowstorm.

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schooling must be on the theory behind the reactor, for there will be plenty of practical training at the landbased prototypes later.

Actually, the working of a reactor, such as the one now operating in *Nautilus*, is really very simple at first glance. But knowing how it works and why it works is something different.

Basically the reactor is a "core" containing enriched uranium, cooled by ordinary water that is kept by high pressure from turning into steam. The water comes out of the reactor at a very high temperature. It is then led into a heat exchanger where it turns a second batch of water into high pressure steam. The steam, which is not radioactive, runs the turbine that turns the propeller.

That explanation is deceptively



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IN NAVY'S FIRST NUCLEAR power school sailors listen intently as instructor LT Robert Crispin, USN, explains math equation during study of reactor theory.

nuclear energy tossed aside in favor of the straight dope. One of the first fallacies to go down the drain is the idea that it take a mathematical genius to master the hundreds of formulas and equations which the nuclear people toss at each other whenever they get together.

Usually when you mention the words "nuclear energy" the average mind conjures up a picture of a long haired scientist, hard at work in a laboratory or deep in the heart of a secret project. Maybe that picture had some justification in the beginning, but Navywise it would be more correct for the mind's eye, to see a crew cut sailor or junior officer intent on the dials of a reactor or busy boning up on the latest developments in the nuclear field.

While mathematics is an important part of the curriculum at the school, it isn't the big bugaboo that might be expected. Several of the students in the basic course, which is primarily for enlisted men, failed to finish high school before coming into the Navy, yet they apply a little extra effort, work a little later at night and keep up with those students who put in a year or two at college during their civilian days.

Thomas P. Kelsey, EN2 (SS), USN, is a good example of what can be done in the way of learning mathematics. Kelsey got no further than his sophomore year in high school and during that year flunked high school algebra. Yet, today he is in the midst of a class in basic

mathematics which starts with the arithmetic of fractions and decimals and advances through all phases of mathematics right up to the use of logarithmic, trigonometric tables and skirts integral calculus.

"It isn't the easiest thing in the world," says Kelsey, "but this school and its methods of teaching the math have certainly done wonders with me. I have to work hard but I think that if I can do it anyone with the ability to try can do the same."

One of the biggest reasons that men attending the school have been able to move along so well in their mathematics is 23-year-old LTJG Frank T. Birtel, USN, who has as solid a background in math as can be found. He has a master's degree in mathematics and for two years taught at Notre Dame as a Fellow while studying for his degree. Getting his degree took him five years instead of the usual seven in one of the toughest fields there is.

The slim, dark-haired officer explains that the course taught the basic students differs to some degree from mathematics taught at universities. Here, the students get more practical application than is usually given in the civilian schools. After an intensive grilling on the framework of math the students got a chance to work with the formulas they will be using to describe the reactor and other elements of their work. "What it boils down to," says Birtel, "is a solid course in applied mathematics, but a rough one."

While it isn't easy, both LTJG Birtel and LCDR William W. Behrens, Jr., USN, Officer-in-Charge of the school, both agree that the Navy students compare favorably in many respects with college students.

The basic mathematics course is 55 hours long and LTJG Birtel has a first class electronics technician as his assistant. He is Lawrence L. Lawyer, a former *Nautilus* crewman who came to the school after a year in the boat.

It is anticipated that sometime in the future Lawyer will take over part of the basic course and allow Mr. Birtel to devote more time to teaching the advanced course which is for officers and enlisted men who show the ability and aptitude to absorb more than the basic course offers.

In Lawyer's words, "the advanced course is a real wing-dinger." The students in that course must have a really solid background of math even to begin. At present no enlisted man has been selected for the course but indications are that it won't be too long before a whitehat will be parked along with those of officers outside the advanced classrooms. All hands show an almost fanatical devotion to study and work.

The desire by some of the students to get into the nuclear energy field is amazing. Take the case of Lawrence P. McNeice, ET1, USN. McNeice was a YN1 when the Submarine Force first began asking for volunteers for the nuclear program.

"I knew that I wanted to get into the program and tried every angle I knew," he said. "But my rating kept me from being accepted. Along about that time I heard about the program which allowed nearly any rate to attend electronics school and decided that if I couldn't get in the front door I'd try the back."

In time McNeice put in his application, and was accepted for the ET conversion course. It took a year's hard work to get through the school, but he made it and changed his rating, always looking ahead to the day when he could apply for the nuclear program.

From ET school he was assigned to *uss Tigron* (SSR-419) and his first official act was to put in his application for the program he had been aiming at all along. It took time, but after a cruise to the Mediterranean and trips around the East Coast, his name came up on the list

just as the school at New London opened. Thus, as long last, he entered the field he couldn't enter back in 1953. He's doing very well, too.

One item missing at the school is a snap course. None of the courses are easy, but they can all be assimilated by Navymen because of the thought, work and energy that have gone into setting up the school.

When the school was first proposed there were those who wondered whether the Navy would be able to come up with enough instructors of a caliber to handle the knotty problems that would arise. The answer to that has been a definite and loud "Yes."

From the officer-in-charge down to the newest of the instructors, everyone concerned has put in his utmost and come up with a finished product that has surprised the experts in the field.

LCDR Behrens, a quiet, likeable man, is a submariner who had command of two submarines before getting into nuclear energy. He and his staff know both the practical and theoretical side of every problem that arises and in many cases have neglected their homelife in getting the school underway.

"One of the things that has helped most has been the terrific cooperation all the way up and down the line," says LCDR Behrens. "Everyone we have talked to has done all he could for us. In particular the Naval Reactors Branch of the Atomic Energy Commission has worked hand in glove with us in establishing our curriculum."

It was difficult to obtain qualified instructors in this new field, yet each of the instructors is well qualified for his position and can hold his own, in his specialty, with just about any nuclear physicist in the country today. Take LT John F. Fagan, USN, in the Physics Department, who graduated with distinction from the Naval Academy, and later received three years of post-graduate training in nuclear engineering at M.I.T. He has joined with Dr. Austin R. Frey, only civilian at the school, to produce a physics course that would do justice to any institution.

Dr. Frey is another case in point. Before coming to the Nuclear Power School he was at the Monterey Post-graduate School, serving as head of the physics department. Actually, he is only on loan from Monterey,

to assist in the groundwork, but he has been caught up in the enthusiasm radiated by the submariners and has devoted more time than duty called for in his work.

Another example is Electrician Robert R. Dunn, USN, who was a second class petty officer when he first entered the nuclear program. After going through the early nuclear training he returned to put *Nautilus* into commission and was serving on board her at the time his promotion to W-1 came through. Dunn takes a back-seat to no one in his knowledge of the electrical systems and components of the reactor and also has the ability to get that knowledge across to his students in the classroom.

The enlisted instructors, three CPOs and seven first class petty officers, are all veterans of the early nuclear training program and all but one have served as a crew member in *Nautilus*. That exception, John F. Skelly, EN1 (SS), USN, is a specialist in the type of propulsion system to be installed aboard *Seawolf*, having recently reported to New London from the West Milton prototype training.

While Skelly is the only instructor who has been given special training in the reactor system to be aboard the second nuclear powered submarine, all the instructors must be familiar with it as the students receive basic training in both systems. As a result, it isn't unusual to find Skelly giving a lesson to the students while several of the instructors sit in the back row taking notes and working as hard as the students.



'SAFE' PLACE is provided for books with classified info. Here, J. M. Delany, IC2(SS), USN, stows them away.

Here again, the enthusiasm and spark shown by the people at the school is unusual. While only one instructor is required to be at the school after working hours to assist the students in their extra study, evenings often find several of the instructors busy working on lesson plans or studying to keep abreast of new developments in the field.

Taking no credit away from the nuclear power men in the country today, it might be well to wonder if the big mystery of nuclear power

How to Apply for Nuclear Submarine Training

The nuclear power program is still growing and there may be a place in it for you. Check the qualifications below to see if you can apply for duty aboard a nuclear submarine.

To be eligible for the submarine program enlisted men must be in pay grades E-3 through E-7 in one of the following ratings: MM, EN, ET, EM, IC. Hospital corpsmen in pay grades E-6 and E-7 may also apply.

You should be qualified in submarines and physically qualified for submarine duty. You may be no more than 30 years of age and must be a high school graduate

or have the GED equivalent. A combined ARI/MECH score of 105 is needed and you should be highly motivated, have a clear record and have a minimum of four years' obligated service.

If you meet the requirements, submit your request via your commanding officer direct to the Chief of Naval Personnel (Attn: Pers B2251), giving above information.

In all cases you will be advised as to what action is taken on your request. If you cannot be assigned to training immediately, you will be placed on a waiting list for assignment at a future date and need not submit another application.

isn't in the fact that it is new and unknown. At this time the changeover in the Navy to nuclear power is as important and vital as the earlier changeover from sail to steam. It might be well to remember that during that earlier changeover there were many who predicted that the new-fangled steam would never work. They were sure that vast explosions would destroy our ships.

"The same fears hold true in many people's minds about nuclear power," said William J. Fleming, ETC (SS), usn, the instructor recently selected for Officer Candidate School. "I often meet people who say that they have either read or heard that the nuclear powered ships are nothing but huge atom bombs that may explode at any minute." He paused and smiled, "As a man who was in charge of reactor control aboard the boat and

who is now teaching it here at the school, I can guarantee that there isn't a chance in a million that the Navy's reactor would cause an atomic explosion. Regardless of what went wrong, there wouldn't be an explosion. The AEC and the Navy have made sure of that."

While all the students receive the same basic instruction, they branch out during the last few months. ETs receive special training in reactor control, the EMs in plant machinery and the ENs in plant control.

The students, even in the first few months of their study, are well on the road to becoming initiated in the field of nuclear power. The six months spent at the nuclear power school is a valuable asset in their training. With it, they can move on to one of the AEC's two prototype reactors and complete their training in one year's time, AND

MANEUVERING ROOM watch keeps intent eyes on the three power panels that supply the power to *Nautilus'* screws during training operations at sea.



CUTTING A WAKE into the era

This Is What's

ON THE DAY that the students first report aboard a nuclear powered submarine, they will be officially graduated into the status of practicing nuclear experts with all the problems and responsibilities that go with the title.

When that important day comes, they can count on serving in the most modern and most comfortable of all submarines. For, in addition to heralding a new Navy through the use of nuclear energy, *Nautilus* is the final word in comfort. The Navy has gone all out to insure that the crew is kept happy and the subsequent SSNs will have all that *Nautilus* boasts, plus more to come.

One of the reasons that the Navy has stressed the comfort angle so much in the new submarines is best reflected in the current story going the rounds of the Submarine Force.

"It is rumored," said a seaman on the base, "that the nuclear powered jobs will only surface once every six years, and then only to allow the crew to ship over."

Six years is a little longer than naval operations will ever require any submarine to stay under water, but it is true that they can stay submerged almost indefinitely should the need arise, and because of the long submergence, much effort has been made to insure that the crew is provided with the best in the way of living quarters.

From officers' country to the crew's quarters, *Nautilus* is a revelation, not only to the submarine sailors but also to the non-submariners: Tales of crowded living conditions, low overheads and such just

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atomic propulsion for the Navy, *Nautilus* has proved the practicability of this new power for future ships.

What's Like In a Nuclear Powered Ship

aren't true aboard SSN 571. She seems to have nearly as much room as the average destroyer.

The mess hall aboard *Nautilus* is a roomy, tastefully decorated affair which sports benches and tables that fold back and make comfortable seats for movies in the evenings. Or they can be removed and a table tennis set-up erected for a tournament. There is a television set for in-port viewing, a radio and a juke box which has outlets in the mess hall and CPO quarters with a selection box in both places.

The boat also has the first nuclear powered coke machine in the world. It is a bit smaller than most, since it had to be specially designed to come down the hatch, but the dispenser rates along with many other features to make life better for the crew.

The chiefs aboard *Nautilus* fare as well on the submarine as they would on just about any other ship in the Navy. They have a CPO quarters that sleeps 12, their own special head and a lounge room that is as big, if not bigger, than the wardroom on a conventional submarine.

The individual bunks aboard the nuclear powered boat are designed to give each man the maximum in comfort and convenience and each man has his own locker space alongside his bunk, foam rubber mattress and room enough to stretch out.

The food situation aboard is the same as in every submarine and there is no denying that it comes close to the top. A typical meal on a recent Friday consisted of either

boiled Maine lobster or a two-inch thick steak, with french fries and all the trimmings.

The top-notch living conditions are important to all aboard, but serve more as a frosting on the cake to the crew for they are all vitally aware of the place they are filling in the Navy. They are the leaders in a field that is, as yet, almost untouched. Every time *Nautilus* dives, surfaces or gets underway, they are setting new records and proving again that the men who dreamed and fought for the nuclear powered submarines were correct in every prediction made about the future of nuclear power.

Perhaps nothing can get across better the tremendous potential of nuclear power in the Navy than a statement made by Paul J. Thorpe, ETC, USN. Thorpe, chief in charge of the reactor control room, was discussing the power plant with a visitor and offhandedly remarked:

"Since the boat has been in com-

mission we have yet to worry about fuel. In over a year's operations we have been running on nuclear energy and can't even predict when we might have to change the reactor core. You might say that we still have lots of energy."

Thorpe's opinion, echoed by all in the program, heralds a Navy that will some day be freed of all fuel difficulties and which will become unlimited in its ability to travel great distances. The nuclear Navy of the future will be powered by power plants that are more efficient and safer than any ever produced. Not only submarines, but destroyers, cruisers and carriers will someday be carrying reactors, giving the U. S. an even stronger and more potent weapon than today's Navy.

Performance-wise, *Nautilus* has more than lived up to her advance billing as many VIPs can testify. During her short career the boat has carried over 60 different flag officers, many high ranking civilians from the Department of Defense and Congress

Wide Screen Movies Go Underwater Too

The last place in the world you would expect to find a wide screen movie would be aboard a submarine, yet *uss Nautilus* (SSN-571), in addition to all her other habitability features, has provisions for showing wide screen movies in the crew's mess hall.

A special screen, measuring six feet, 10 inches wide, by two feet, 10 inches high, has been made for the boat and installed. A special lens is needed to show the wide

screen movies and this, too, has been appropriated with the result that the super duper movies coming out of the film capitol receive early showings aboard the boat.

While the screen is probably the smallest "giant" screen in the country, the crew claims that it is perfect except on those occasions when one of the female stars appears in costume, then they bemoan the fact that the screen isn't a little larger.



A FIX RECEIVED at periscope depth from a Loran station is plotted by QM First Class J. P. Teixeira, USN, as LT W. R. Cobean, Jr., USN, observes.

and members of the AEC on short cruises.

On these trips with VIPs embarked, the boat and her crew go through the paces to show just what a tremendous piece of machinery *Nautilus* is, and as yet no one has ever gone away with less than complete enthusiasm for the submarine and her crew.

Once *Nautilus* gets underway from her New London pier she proceeds out into the open water near Block Island for the full demonstration of her capabilities. With plenty of deep water below, the word is passed for "angling and dangling," the crew's nickname for a maneuverability demonstration.

After all loose gear has been secured the skipper, CDR Eugene P. Wilkinson, USN, assembles the guests in the control room and takes off all stops on the submarine, explain-

ing each move as it is made.

While a full performance report on *Nautilus* can't be released at this time, suffice it to say that the boat has exceeded the Navy's most optimistic expectations. As of 1 Mar 1956 she had steamed 29,377 miles with over 15,000 miles of that submerged.

Some of the senior flag officers who have had previous submarine experience find it hard to believe their senses as they watch the control board during the operations. After the demonstrations they become almost lyrical in their praise of the boat.

"It's unbelievable," said a two-star admiral recently. "I only wish I were younger and could start all over in this New Navy that the *Nautilus* is spearheading."

Following the complete demonstration, with the regular watch-

standers at the controls, the fun begins. The skipper and the crew provide a special surprise for all visitors by allowing them to handle the controls while underway.

With the diving officer standing behind the controls and checking each visitor out, the boat soon begins to go through its bag of tricks. At times like that the number of stars sitting in reaches pretty large figures and it is doubtful if any ship has had more rank at the controls. The present record was reached with two four-star admirals and one three-star admiral serving on the bow planes, stern planes and helm.

Following the orders of the skipper, the visitors take the boat and handle her in dives, climbs and turns. For some of the visitors it marks their first time at the controls of a submarine and yet, after the first few nervous moments, the guests handle the submarine with all the skill of an old hand. However, there is a note of tension and unfamiliarity on their faces that is missing when the watchstanders return to the controls.

The crew of *Nautilus* gets a big kick out of these operations and have standing jokes concerning their frequent VIP trips.

One third class in particular is keeping a special log on how many admirals he has relieved on the stern planes. At present the list is quite lengthy, with indications that more will follow.

In addition to being impressed with the boat during her maneuvers, guests aboard can't help being amazed in touring the entire submarine.

From her maneuvering room to the forward torpedo room, *Nautilus* is loaded with innovations that open many an eye. In the engine room for instance, are located the only known upside-down periscopes in use aboard submarines today.

The topsy-turvy periscopes serve to give the reactor control gang a view of the reactor space which is not entered while the reactor is in operation because of radioactivity.

While this space is radioactive, there is no danger of contamination spreading to the rest of the boat. Thick shielding protects the crew in other compartments. The only time the reactor space itself is normally entered is when the reactor is secured.

While the danger from radioactiv-

ALL HANDS

ity is slight, every precaution is taken aboard *Nautilus* to insure that nothing goes wrong at any time. Each crew member wears a small clip-on indicator, which is read frequently by the corpsmen aboard, to make sure they aren't being overexposed to radioactivity. AEC laboratory safety standards have been used as the reference in constructing the ship.

"Except for the people in reactor control," said Ernest P. Resner, HMC, USN, "no one has been exposed to any more radioactivity than they might pick up on a day at the beach under the direct sun. The people in reactor control get a little more than that, but not enough to be dangerous. As a matter of fact," he concluded, "the most that any one man has picked up in a year's time wouldn't have hurt him if he had been exposed to that much in a week's time."

In the event that any trouble should develop in the reactor, the boat carries special clothing for the men who would go in the lower compartment and do the repair work. However, unless it were an emergency the reactor would merely be secured and the ship would then switch over to either diesel or battery power.

While *Nautilus* has both battery and diesel, the batteries needed are far smaller and fewer than on the conventional submarine. This is one of the reasons for the added room so noticeable aboard the boat.

Both the diesel and battery systems are in operating condition and

What You Learn at Nuclear School

Taking the mystery out of nuclear energy—that is the major job of The Nuclear Power School in New London, Conn. To do this job a basic course for enlisted men has been set up which is based on the following subjects:

- **Mathematics**—A 55-hour course which begins with fractions and decimals, and takes the students through algebra and trigonometry to introductory calculus.

- **Modern Physics**—A 90-hour course which is a survey of classical, atomic and nuclear physics.

- **Reactor Principles**—A 40-hour course which introduces the students to reactor physics, engineering and materials.

- **Slide Rule and Blueprints**—A 15-hour course which teaches the students how to use the slide rule

and how to read blueprints.

- **AC Theory**—A 30-hour course on the principles of alternating current.

- **Thermodynamics**—A 15-hour course on the laws of thermodynamics.

- **Nuclear Power Plant Systems**—Two courses designed to introduce the system used aboard *Nautilus* and the one to be installed aboard *Sea Wolf*.

- **Water Technology**—A 10-hour course dealing with properties of water.

- **Health Physics**—A 10-hour course in preventive medicine as applied to nuclear energy.

- **Specialized Training**—Each student receives 200 hours specialized training in the job his rating performs aboard the submarines.

can be utilized at a moment's notice by merely switching one or the other on through the maneuvering panel located aft. There are three panels, one for the nuclear power, one for diesel and one for the batteries. A man is on watch over each system whenever the boat is underway.

Throughout the boat the same thorough planning is evident. Whenever a problem might arise, a solution is ready and waiting. Every problem that has arisen in the little over a year the boat has been in commission has been met and de-

feated. Sometimes the problems called for new answers, sometimes for old familiar ones that come only from experience. Whatever they were, the men of *Nautilus* were waiting and above all, prepared.

Whatever the future holds, and you can let your imagination run riot on the possibilities, it is definite that *Nautilus*, her crew members and the men now attending the Nuclear Power School have been in on the ground floor in the development of the Atomic Age Navy.

—Bob Ohl, JOC, USN.

USS SEAWOLF (SSN 575), atomic sub number two, moors opposite *Nautilus*. Soon more A-powered subs will join them.



A Year in the Log of USS Nautilus without Refueling

During her first year of service, *USS Nautilus* (SSN 57) has demonstrated to the U. S. Navy and to the public the practicability of travel by nuclear power. She has also compiled an impressive list of statistics and broken innumerable records. Here's a summary of the Navy's first year "underway on nuclear power."

In 365 days *Nautilus* made 365 dives and traveled 26,231.3 nautical miles without refueling. Just over half of this distance (or 13,140.7 miles) she had steamed totally submerged, the longest such run lasting 89 hours and 42 minutes. She visited six ports from Portsmouth, N. H., to St. Thomas, V. I., her longest period underway lasting 206 hours.

In her first 75 cruises, she has carried 1542 different passengers, in addition to her crew. Her guests, mostly naval and test personnel, have included high government officials, Congressmen, and 76 admirals. Many of them have sailed in her more than once.

Personnel were transferred at sea via helicopter 110 times. Another 4913 officials and Navymen inspected her in port, including the entire Class of 1956 of Naval Academy midshipmen. Many of the latter will some day serve aboard nuclear warships.

In spite of this activity, the recreation of her crew, numbering 93 enlisted men, were not ne-



AT BATTLE station on *Nautilus* J. A. Baumgartner, IC1(SS), USN, shifts a gyro repeater during sea tests.

glected: 387 feature movies were shown in the crew's mess in the first 12 months. Nor has the public forgotten the men of history's first uranium-powered vessel: fans have addressed over 8700 letters to the ship, several of which have borne such abbreviated addresses as "Atomic Submarine, USA." In addition, 2168 classified letters were among the 6000 pieces of official correspondence received aboard, while her yeomen typed nearly 2800 outgoing official letters. *Nautilus* radiomen tapped out 710 messages, and received 1566 messages in return.

And how have the crew fared at the mess table? The figures would indicate both healthy appe-

tites and healthful meals, for over 21,002 pounds of fresh meat, 3894 pounds of fowl, and 1118 pounds of Navy beans were consumed on board, after having been washed down with 89,482 cups of coffee, a sure indication that the Fleet's favorite beverage is also the most popular in the atomic Navy.

Forty-six crew members were promoted in the first year. This included the Skipper, CDR Eugene P. Wilkinson, usn, and six other officers selected for promotion, five enlisted men commissioned as officers, and 34 petty officers advanced in rate. Thirteen have reenlisted since last January. These promotions and reenlistments necessitated the assignment of 38 new men to replace those transferred to schools and other duty.

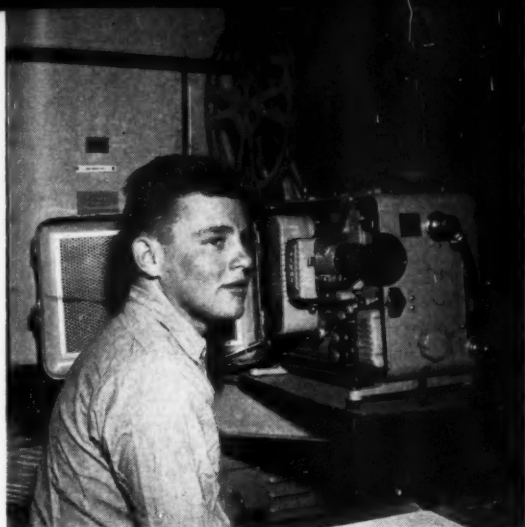
Nautilus has set and broken so many records that her crew can no longer keep track of them. On 21 Mar 1955 her wardroom served as the first submerged Congressional hearing room when she carried the Joint Congressional Committee on Atomic Energy for an orientation cruise.

On her shakedown cruise to the Caribbean, *Nautilus* made the 1300-mile run from New London to San Juan (P. R.) totally submerged at an average speed of over 16 knots.

These are some of the statistics released about the first nuclear sub's first year at sea.

A-SUB SURFACES — *USS Nautilus* (SSN 571) comes up by *USS Sarsfield* (DD 837) during amphibious maneuvers.





High Living Below

THE CREW MEMBERS OF USS *Nautilus* (SSN 571) can truthfully be referred to as living "high off the hog" for not only has the Navy put the most modern propulsion system and operating gear aboard but it has also included all the latest comforts that could possibly be fitted into the atomic powered sub's hull.

Top left: Special lens brings the latest wide screen movies into converted mess hall as D. K. Breese, SN(SS), USN, acts as projectionist. *Top right:* Lobster salad is prepared by D. R. Wilson, SD3(SS), USN. *Right:* The old Navy game of acey-deucey finds its place in the nuclear Navy as J. W. Armstrong, SO2(SS), USN, (left) and R. L. Kloch, QM2(SS), USN, battle it out. *Lower left:* R. V. Foster, EN1(SS), USN, slakes his thirst at soft drink stand running on atomic power. *Lower right:* Large mess hall affords plenty of room for off duty activities. Tables change to seats for movies.



There's Going to Be a Wedding

A NAVAL ENGAGEMENT of the utmost importance was announced early this year. Not a shot was fired as this is an engagement which will be followed by one of the most important weddings of the year.

This will be a wedding of the fish and the atom to produce an improved nuclear-attack submarine. It will represent another step forward in underseas ship development, and will be superior to its nuclear powered predecessors, *uss Nautilus* (SSN 571) and *uss Seawolf* (SSN 575), in all aspects of its underwater characteristics.

The first submarine that will have both the "tear-drop" or fish-shaped hull design and a nuclear reactor will be SSN 585. The new SSN hull design will be shorter and less slender

than that of previous attack submarines and will have a slightly larger displacement.

In addition to the atomic powered submarine that will have the tear-drop shaped hull, three other diesel-powered submarines to be built in fiscal 1956 will have hull designs similar to SSN 585.

The three diesel-powered submarines, SS 580, SS 581 and SS 582, will have about the same displacement as previous post-war submarines, but will have a single screw propeller rather than the conventional twin screws. Engines will be high-performance, improved modifications of WW II heavy diesel models.

The first submarine that was produced with the fish-shaped "tear-drop" hull, the *uss Albacore* (AGSS

569), has been in operation for over a year. This test has turned out to be successful from a hull design standpoint as *Nautilus* was from the viewpoint of atomic propulsion.

Since the end of World War II, experiments have been going on with submarines of various designs and for different missions. First came the conversion of a number of diesel-powered boats into guppies — submarines with snorkel breathing devices, extra batteries for increased underwater endurance, and the streamlining of the hull for greater speed submerged.

Then came a number of undersea craft for special missions. These were the SSKs, hunter-killer submarines designed to fight enemy submarines below the surface; large picket boats, to serve as radar picket boats to warn the battle Fleet; guided missile submarines; troop-carrying subs and underwater tankers.

In the meantime, experiments were proceeding with atomic propulsion and the "tear-drop" hull design of *uss Albacore*. *Nautilus* was built with an improved hull design, plus a nuclear reactor to provide atomic propulsion. The result was a displacement of about 3400 tons submerged. The second A-sub, *uss Seawolf* (SSN 575), will be slightly larger.

Albacore, however, is a fish of a different design. It is the new look in submarine hull design, which permits the boat to go farther, faster, without paying so much for the ride.

Albacore was conceived in 1948 when it became evident that, due to increased speed and detection abilities of destroyers, ASW weapons, and the receptive power of sonar, submarines would have to go faster underwater. The Bureau of Ships, working with the David Taylor Model Basin at Carderock, Md., set out to design a submarine whose hull form would permit the utmost submerged speed with a minimum of power while still considering living conditions for the crew and control of the boat for steering, diving, surfacing and operations submerged.

A thorough study of airship research and other previous work was made. Actually, there is little difference between a submarine submerged in water and an airship flying in the

'HOT ROD' SUB'S crew members operate manifold in engineroom of Navy's *Albacore*. It has high speed hull design which will be used on A-powered sub.



ALL HANDS

air. It is the medium in which they "swim" or travel that is different. A submarine represents an air bubble in the water while an aircraft represents a solid body surrounded by a "sea" of air.

In addition to the work at the David Taylor Model Basin, further experiments were conducted with the help of the National Advisory Committee for Aeronautics at Langley Aeronautical Laboratory, Langley Air Force Base, Va. Here tests were performed in the wind tunnel on a one-fifth scale model of *Albacore*. The model was mounted in the wind tunnel just as aircraft models are tested and for many of the same reasons. From this investigation a hull was formed that presented the least amount of frictional drag consistent with volume requirements.

There are a number of factors which affect the resistance of any ship. They are such things as skin friction, wave-making resistance, eddy-making resistance, roll and pitch, and wind and sea. For a submarine the shape of *Albacore*, there is much less surface area exposed to the water than in conventional submarines and particular attention was given to the smoothness of the hull.

The new hull lines of *Albacore* are so efficient in comparison with hull forms of World War II Fleet type boats and post-war streamlined guppies, that compared on an equal vol-

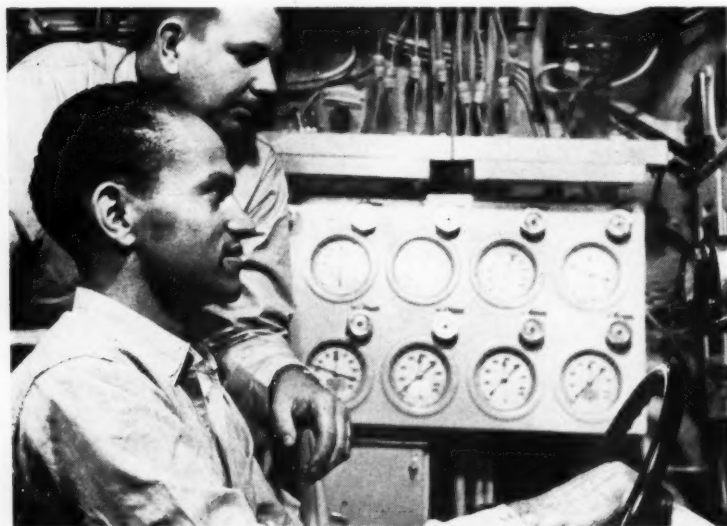


USS ALBACORE (AGSS 569) leaves a narrow wake as her fish-shaped body cuts through the sea. Below: *Albacore* surfaces during test run as blimp passes.





FISH'S EYE VIEW of what's going on up there. Officer of *Albacore* takes turn at periscope of experimental sub.



AIRPLANE-TYPE controls are manned on USS *Albacore* (above); photo below shows streamline features.



ume basis, *Albacore* requires less than one half of the shaft power of the guppy submarine to make the same submerged speed. When using total power available, she is faster submerged than any other U.S. submarine currently in operation.

Albacore is smaller than the new *Tang* class boats but larger than the "K" class of killer-boats. She has a crew of 36 men and four officers. Another innovation in submarine construction is *Albacore's* single screw. The recently constructed "T" class training boats were the first in many years of submarine construction to use this type. *Albacore* uses a single, five-bladed screw which resulted in the unusual configuration of her stern planes and rudder.

She has a small conning tower bridge which resembles the dorsal fin of a fish. Her tail looks like that of a Navy blimp.

Albacore's main propulsion power plant is a conventional diesel electric

drive similar to that carried aboard the *Tang* class of subs. The engines are the radial pancake type, used for their light weight and space-saving qualities. A single motor with two armatures operate on the single propulsion shaft.

In the hydraulic system, hydraulic pressure is released to operating mechanisms by the use of electrical solenoid stop valves which are electrically controlled from a central control board located in the Central Control Room.

Bow and stern planes, as well as steering, can be controlled by one operator using an aircraft-type joystick arrangement. A forward thrust of the stick actuates hydraulic controls that in turn power the bow and stern planes giving them dive-angle for submerging.

Pulling back on the stick reverses the process and the bow and stern planes shift to a rise-angle position. A wheel on top of the stick it used for steering the boat.

Albacore can also be controlled by one, two or three men at one time. When two or three men are used to control the ship, one man does the steering, with one or two men controlling the depth.

With her new hull-design that resembles a sperm whale in shape, the new *Albacore* has been able to go faster submerged than on the surface and requires less horsepower to accomplish it.

Albacore represents another long stride that submarine hull design will be making in the future. With the information she has provided, the U.S. Navy, in merging the atom and the fish, will develop in SSN 585 (to be named *Skipjack*) a ship that will keep U.S. submarines the fastest—and most potent—in the world.

Rudy C. Garcia, JOC, USN



Proved in Battle

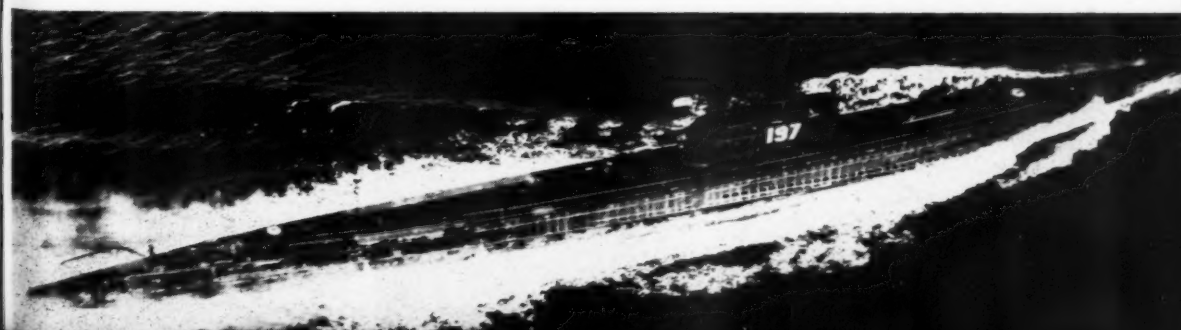
UNDERSEA SAILORS heaped glory upon themselves and the Navy for their heroic actions in World War II. Their methodical destruction of enemy merchant ships and men-o'-war played a major role in tipping the balance in our favor.

Tales of their heroism and daring, of accomplishing the impossible and more, have become a permanent part of naval history and legend.

Not all submarine yarns follow the pattern of launching torpedoes and sinking enemy ships. Take the case of *uss Barb* (SS 220)—pictured on page 19. She added a chapter to submarine history by landing a saboteur force in Patience Bay, Japan, to destroy a railroad line. Two boats, with four men in each, were sent from the submarine. The men "booby-trapped" the railroad and, while they were returning to *Barb*, their mission was accomplished. A Japanese train roared along, detonated the charge. Twelve cars piled up and the track was a twisted ruin.

Pictured on this page are some of the submarines that made history in the second world war.

Top: heroic World War II submarines take time out from patrols at Pearl Harbor. L-to-r: *uss Flyingfish* (SS 229), *uss Spadefish* (SS 411), *uss Tinosa* (SS 283), *uss Bowfin* (SS 287) and *uss Skate* (SS 305). Right Center, (from top to bottom): *uss Guardfish* (SS 217), *uss Tang* (SS 306) and *uss Harder* (SS 257). Below: *uss Seawolf* (SS 197). These and other members of the undersea fleet chalked up outstanding records in World War II.





DESTRUCTION of enemy shipping was a decisive factor leading to victory in WWII. Below: Submarines load 'tin fish.'



Heroes in Action

ABOVE AND BEYOND the high standards expected of Navymen and Navy ships." "Distinguished . . . by outstanding heroism in action against the enemy." "Distinguished conspicuously by gallantry and intrepidity at the risk of life above and beyond the call of duty." Such are the phrases to be found in citations accompanying awards of the Presidential Unit Citation, the Navy Unit Commendation and the Medal of Honor.

Distinguished valor or enterprise in danger makes a hero; so does fortitude in suffering; and no branch of your Navy has seen more danger—or given a better account of itself—and wound up with more heroes than the submarine service.

The stories behind names like O'Kane and Dealey, *Tang*, *Harder* and *Guardfish* are common knowledge wherever submariners gather. Dozens of other submariners and submarines also gained fame, and their stories make exciting reading, even in the dry language of official reports. Even others were just as heroic, but it was heroism of a different type—the "fortitude in suffering" which usually makes no headlines.

Perhaps best-known of the undersea fleet's heroic submarines are USS *Guardfish* (SS 217) and *Tang* (SS 306), each the holder of two PUCs.

Guardfish picked up her initial PUC for her first and second war patrols, early August to late November 1942. From her first patrol sta-

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tion, on the coast of Honshu, SS 217 sent eight ships—or a total of 51,055 tons—of enemy shipping to the bottom and damaged a 7000-ton freighter. Two of the eight were in the same convoy, and went down within a minute of each other, another was credited to a single torpedo, fired at a range of nearly four miles. Her second patrol, in the East China Sea area, accounted for one freighter and one tanker, and damage to another freighter.

The second PUC awarded to *Guardfish* was in recognition of her eighth war patrol, during which she gave an emphatic demonstration of her effectiveness as a Jap shipping nemesis. While working as part of a four-submarine task group off For-

another freighter to her tally. By the end of her first patrol SS 306 had fired 24 torpedoes—and downed almost 25,000 tons of enemy.

Her second patrol resulted in no shipping losses; nevertheless, *Tang* turned in an outstanding patrol. Her cooperation with aircraft of the U.S. striking force attacking Truk, her willingness to proceed from point to point within gun range of shore batteries in order to rescue personnel of downed aircraft—and seizing the initiative by bombarding known gun emplacements on Ollan Island, all added up to a patrol which was not only remarkable—it resulted in the rescue of 22 downed naval air force personnel.

Third of the trio of patrols for

a 10,000-ton Japanese tanker.

Just five days following this operation she bagged a "lone wolf" medium freighter after several hours of cat-and-mouse play which found the submarine making an "end around" run to get her quarry into position, then missing with two torpedoes and being forced to lie low and listen to a barrage of depth charges. Finally back on the surface, *Tang* managed another end around and snuck in a single "feeler" from a range of 750 yards, breaking the freighter's back.

Within the next few hours *Tang* had expended an additional four torpedoes, accounting for a 4000-ton medium freighter and a 2000-ton escort freighter.

Hard-hitting *Tang* topped off her patrol by sinking a 7000-ton cargo ship with two hits (out of three torpedoes), and two additional vessels with her remaining four torpedoes.

Summed up, CDR R. H. O'Kane's boys and SS 306, for their first three patrols racked up the enviable record of 13 enemy ships sunk, 22 naval flight personnel rescued and one PUC earned "for brilliant and heroic achievements" reflecting "the highest

which *Tang* received her first PUC was in the East China and Yellow Sea areas. After departing Pearl Harbor on 8 Jun 1944, *Tang* made her first contact—a six-ship convoy—on the night of 24 June and sent to the bottom a 7500-ton freighter and

MEN OF SILENT SERVICE fly own battle flag on return from patrol. *USS Parche* (SS 384) won a PUC. Her CO was first living sub man to earn Medal of Honor.



APRIL 1956

Action under the Sea

mosa, Guardfish, in a successful "end around" run on a 10-ship convoy, fired six torpedoes at a formation of five overlapping ships. The attack resulted in quick sinking of four of the vessels, including a large tanker. Two additional ships of the 10 were sunk in the next couple of hours. All attacks were made on the surface, using radar and camouflage to full advantage.

By the end of her eighth patrol, *Guardfish* had also sunk a large naval auxiliary vessel and a freighter, and damaged another freighter—a good record in anybody's book.

The fabulous *Tang*, second Navy submarine to pick up two PUCs, identified herself as one of the Navy's fightingest subs in her short career. From her commissioning in October 1943 until she went to the bottom in October 1944, *Tang* accounted for something like 100,000 tons of enemy shipping in the Pacific.

Tang's first patrol began with life-guard duty in January and February 1944 in the Caroline-Marianas area. On completion of this job, she went hunting for prey—and promptly made contact with a two-ship convoy escorted by a destroyer and *Tang* was forced to go deep and sit out a half-hearted depth-charge attack. Back to radar depth, she loosed four torpedoes at a range of 1500 yards for three solid hits and sank a freighter of approximately 7000 tons. Five nights later *Tang* added a passenger-cargoman and



DEADLY RAIDERS of sub pack take time out at Pearl for a well earned rest after returning from hazardous patrols in waters at enemy's door step.

credit upon the courage, seamanship and determination of her officers and men."

Tang's fourth patrol, this one off the coast of Honshu, was another first class showing; but the report of her fifth patrol—her last one—makes up a brilliant saga, the tale of one of the greatest submarine patrols of all time. The citation accompanying the PUC awarded *Tang* for these two patrols tells how she "daringly challenged two large, well armed, heavily escorted convoys" and "without support and in heroic defiance of severe countermeasures she attacked relentlessly from all sides, waging furious battle against terrific odds and climaxing her aggressive fifth patrol by sending every ship of both convoys to the bottom."

The PUC citation does not tell the full story of *Tang*, but let's look at her skipper's citation for the Medal of Honor. In going after the first of those two convoys, Commander O'Kane (who's now CAPT.)

maneuvered on the surface into the midst of the heavily escorted group. Under a fusillade of lead from all directions he launched torpedoes into three tankers, then swung *Tang* to bear on a freighter, but was forced to make way for an onrushing transport. Despite his position—three blazing, sinking tankers on one side, a freighter, transport and several destroyers on the other, and a hail of artillery fire from all directions—*Tang* launched another torpedo attack which blew the freighter and transport out of the water. That was one convoy down.

Hardly 24 hours later, *Tang* met up with her second convoy—and her end. Again she ran into the heart of the convoy formation and fired four torpedoes to down one transport and one tanker, both loaded to the gunwales with supplies for the hard-pressed troops on Leyte. But *Tang* was now in another box, this one formed by a large transport and a tanker on the submarine's

stern; a destroyer on one side; two or more destroyer escorts on the other; three sinking ships directly off the bow; a "hot-lead" overhead and the bottom below. Facing her charging attackers, *Tang* needed just three torpedoes to halt the tanker, the transport and the destroyer.

With her last two torpedoes *Tang* then squared off on the crippled freighter. The first "fish" ran straight and true, hitting the target like all good torpedoes should; the second, erratic animal, ran a circular course which brought it into *Tang's* stern, despite the submarine's frantic attempt to get out of the way. Although *Tang* sank immediately, several members of her crew (including her skipper) were captured and sat out the remainder of the war in prison.

After *Guardfish*, after O'Kane and *Tang*, there are *uss Barb* (220), *Boufin* (287) and *Trigger* (237), each with one PUC and one Navy Unit Commendation; and *Seawolf* (197), who earned herself a pair of NUCs.

The first paragraph of the Navy's official history of *Barb* gives you a pretty good idea of the conduct behind her awards: "In ringing up a toll of nearly a quarter million tons of Japanese shipping sunk or damaged, *uss Barb* resorted to nearly every type of aggressive warfare, ranging from a bold surface assault in a shallow, uncharted harbor to an old sea fisherman's trick of seeking cover behind icebergs to waylay her unsuspecting prey. She was the first submarine to employ rockets and the only one to blow up a railroad train."

Barb's official history is also one that tells a tale of "fortitude in suffering." On her ninth patrol (which began 4 Aug 1944), *Barb* made ready, after a sleepless night and a five-hour submerged chase, to attack a large hunter-killer ship. At this crucial moment she ran afoul of a fiendish anti-submarine weapon—a bird which patrolled ahead of the submarine and, upon spotting the periscope, proceeded to perch on it and drape his tail feathers over the exit windows.

The sleepless, frustrated approach officer banged on the scope, shook it, shouted at the bird, all to no avail. He even raised and lowered the scope desperately, but the wily fowl hovered in the air as the periscope went under and returned when it was raised.

AFTER SINKING Japanese ship early in World War II, a Navy submarine surfaces while crew members scan debris-filled sea for possible survivors.



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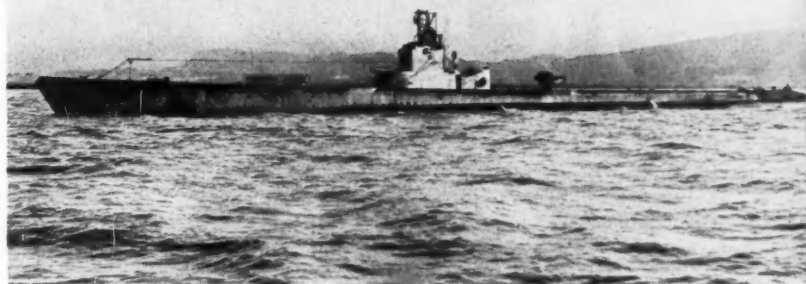
Bowfin's PUC came for a patrol (her second) in the South China Sea area which accounted for an even dozen ships, including three in excess of 5000 tons and a tanker of approximately 10,000 tons. Her NUC was awarded for her sixth war patrol, during which *Bowfin* really carried the fight to the enemy—by following three ships into harbor, then launching an attack which accounted for two of the vessels, a concrete dock and a bus carrying a liberty party.

Later in the same patrol *Bowfin* wiped out an entire five-ship convoy of the enemy which included two destroyers.

The PUC held by *Trigger* was awarded in recognition of her fifth, sixth and seventh patrols (30 Apr-8 Dec 1943). On these three patrols rapacious *Trigger* sank over 44,000 tons of enemy shipping, including five cargo vessels, two tankers and two passenger-cargo ships. During their fifth patrol *Triggermen* also had the pleasure of laying four beautiful shots into a giant new carrier. Although the flattop did not sink, reconnaissance photographs showed that she was still being repaired over a year later.

Trigger's ninth war patrol was the basis for her receipt of the Navy Unit Commendation. This patrol got off to a bad start, with SS 237 taking a terrific 17-hour pounding from six A/S vessels following an attack on her first convoy of the patrol. When she finally got back to the surface, most of her compartments were partially flooded; her bow planes, trim pump, sound gear and both radars were out of commission; her radio wasn't working and most of the auxiliary machinery was out of alignment. Patched up with baling wire and a few spare parts from *Tang*, *Trigger* continued her prowl—and wound up sending four freighters and one escort vessel to the bottom before she headed back to the States for major overhaul at Hunters Point, San Francisco.

First of the two NUCs awarded to *Seawolf* was in recognition of her fourth patrol, made in the Southwest Pacific during the period when enemy naval and air power was at its height. During that patrol SS 197 lived dangerously, tracking her targets "into treacherously confined and shallow waters to launch in rapid succession one smashing attack after another on heavily escorted convoys and vital enemy combatant units.



USS BARB (SS 220) makes her way through Pacific waters. Her combat record boasts the fact that she was the only sub to 'sink' a railroad train.

Undeterred by inevitable counter-measures, she struck daringly to sink or damage thousands of tons of shipping including Japanese cruisers and transports, a freighter and a destroyer, returning persistently to the attack despite exceptionally severe depth charging which started numerous leaks, broke her instruments and put vital machinery out of action."

Seawolf's second NUC was for her seventh patrol (in the Davao Gulf, Palau and Yap areas) during which she destroyed 11 cargo ships and extensively damaged two freighters. Having exhausted her torpedo sup-

ply, *Seawolf* used surface gunfire to demolish one ship and force yet another into the attack range of a friendly submarine.

So much for the submarines who twice found themselves in the right place at the right time—and with the right crew and combination of circumstances—to earn an award for service substantially above the high level of performance expected of Navymen anywhere, anytime.

Then there were the boats like *Tinosa* (SS 283), whose men became heroes by virtue of that self-same "fortitude in suffering" long before their ship was tapped for a

ON THE PROWL a Navy sub searches for enemy shipping. With the sighting of its prey a peaceful scene like this becomes the site of violent action.





HEROIC ACTIONS of sub men included rescues of downed airmen. Here, PBY crew is picked up off Japan.

PUC. While under command of LCDR L. R. Daspit (now RADM), *Tinosa* (on 24 Jul 1943) found herself with a much-coveted target—a 19,000-ton whale factory which had been converted to tanker use. *Tinosa's* initial four-fish spread left the unescorted giant wallowing dead in the water, much like a mired hippopotamus. Two additional torpedoes, and the vessel belched smoke and settled slightly by the stern,

but Daspit and his *Tinosans* wanted to see her sink.

The tanker's sizeable deck guns prohibited surface assault, so *Tinosa* was brought in for a torpedo attack calculated to blow the hapless vessel to bits. The next torpedo was fired off the tanker's beam, at a range of 875 yards, and was heard to make a normal run. At the moment when the sound of the torpedo's screws stopped abruptly, *Tinosa's* periscope showed a splash at the point of aim—but no explosion followed.

Seven additional "fish" were launched with the greatest care and precision—and each of them was followed by a deafening silence. Indeed, one of the torpedoes was seen to hit the tanker, jump clear of the water like a playful bass, and sink. The shooting lasted for several hours, ceasing when *Tinosa* had a single torpedo left. The results: 15 torpedoes fired, 12 hits, four explosions, one ship still afloat—and one batch of exasperated submariners determined to find out why perfect hits should turn out to be duds.

Back in Pearl Harbor, Daspit's report, *Tinosa's* sole remaining torpedo, a series of tests and some brainwork produced the answer: the torpedo exploders failed to work when "fish" were fired at a 90-degree angle because the firing pins did not strike the primers with sufficient

force. When the torpedoes struck their target on an angle, the exploders usually worked. Thus, as a result of *Tinosa's* bitter experience, a modified firing pin was developed which gave our submariners reliable torpedoes—but *Tinosa's* men were still mighty unhappy about "the big one that got away."

Dozens of other ships and men could be named:

- *uss Harder* (SS 257), whose fifth patrol was tagged "the most brilliant submarine patrol of the war," had an abbreviated career (less than two years) but it cost the enemy 16 vessels totaling some 54,000 tons. His brilliant work as *Harder's* "old man" brought LCDR S. D. Dealey a Medal of Honor, Silver Star and four awards of the Navy Cross. *Harder* was awarded the PUC.

- *uss Parche* (SS 384) picked up a PUC for her first and second patrols, while her skipper, CDR L. P. Ramage (now RADM), became the first living submariner to win the Medal of Honor.

- *uss Tirante* (SS 420) was another of the "bold ones" who carried the war right into enemy anchorages. SS 420 stalked into the harbor at Cheju-do (an island off the southern Korean coast) to knock off an ammunition ship and two frigates—then made a surface getaway right under the eyes of the enemy. Her PUC sort of "came naturally"—

BACK TO THE PACK—USS *Tinosa* (SS 283) is greeted by fellow submarines as she returns to base after mission.



as did the Medal of Honor for her skipper, CDR G. L. Street.

There were Medal of Honor winners like CDR Eugene B. Fluckey, who took *Barb* into the lower reaches of Nankuan Chiang to get at a concentration of more than 30 enemy ships—totally disregarding a retirement course which necessitated an hour's run at full speed through uncharted, mined and rock-obstructed water.

And there was *Crowler's* CDR Howard W. Gilmore, who sent his men below while he remained on deck to direct evasion at an attempted ramming by an enemy gunboat (despite a hail of machinegun fire). Mortally wounded, Gilmore remained topside while ordering his officer of the deck to "take her down."

Finally, there was CAPT John P. Cromwell, USN, who sacrificed himself rather than risk capture and the danger of revealing information he possessed on our submarine strategy and tactics, scheduled Fleet movements and specific attack plans. Cromwell was commander of a submarine coordinated attack group, with his flag in *uss Sculpin* (SS 191). His undersea flotilla was moved inexorably forward despite savage opposition, to establish a line of submarines to the southeast of the main Japanese stronghold at Truk.

When *Sculpin*, rocked and battered by depth charges, sustained terrific damage and sank to an excessive depth, Cromwell authorized the boat to surface, thereby giving the crew a chance to escape. Cromwell himself stoically remained aboard the mortally wounded vessel as she plunged to her death.

There are other heroes, too, although their names are rarely mentioned in official histories of the boats they served, and the PUC and NUC citations mentioned no names at all.

They were the men who risked—and frequently gave—their lives for the safety of their buddies; the men who sat quietly in boats caught in precarious conditions, listening to (and feeling) the explosion of innumerable depth charges. These heroes were the submarine crewmen, the specialists who operated the undersea craft—the teammates, officer and enlisted, who pulled together for the greater glory of their boats.

—Barney Baugh, JO1, USN

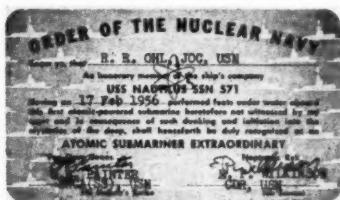


Plank Owners Make Way for the Neutron

The Navy of the future will be supplementing the ships plank-owner with an up-to-date counterpart if the custom established by the men on board *uss Nautilus*

to the men on board during the boat's first dive.

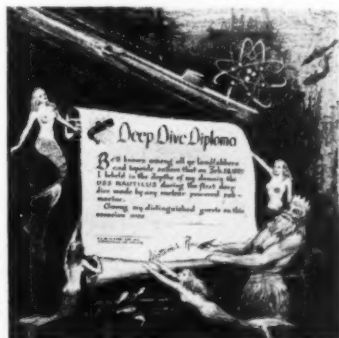
Nautilus issues still another certificate for which the crew members are ineligible. This is a wallet-sized card which designates the bearer as an honorary member of the ship's company and is given only to men, outside of the crew, who have "performed feats underwater," while aboard the boat for a visit. These cards are in great demand by the visitors to the boat and everyone who receives them, and the title Atomic Submariner Extraordinary, carries the card with pride. Pictured here are: *Top*: Neutron Owner's Certificate; *left*, Honorary Ship's Company card; *below*: Deep Dive Diploma.



(SSN 571) is carried out. Instead of issuing the usual plank owner's certificates, the crew of the atomic sub got together and designed a Neutron Owner's Certificate.

To date none of the departing crew members have presented their certificate and demanded their neutron, but in the event some did there wouldn't be much of a problem. A dictionary describes a neutron as "a minute particle of matter," and everyone leaving the boat carries some small particle of nuclear matter with him.

Crew members on board *Nautilus* also have another certificate they will prize during the remainder of their Navy careers and that is the Deep Dive Diploma, issued



Navy Photogs De

THE MAN HAD two tanks strapped to his back. A hose from each of the tanks led to a device he held in his mouth. His face was covered with a glass-front rubber mask. He had on a black suit and his feet were covered with elongated rubber fins. In his hands he carried a small box, about the size of a football.

He was neither a man from another planet nor a spearfisherman. He was an official Navy photographer, ready to go below the surface of the ocean and take underwater pictures.

Underwater photography, although new to the average layman, has been a subject of intense study by a group of Navymen. For the past few years, the Navy has been conducting research into photography in a new medium—water. With the development of cameras suitable for underwater use, Navy photographers have shed their traditional uniforms and donned underwater gear to obtain photographs from beneath the sea providing information that was previously unobtainable or obscure. Such subjects as a ship's hull or a submarine underway, or a training film on underwater weapons or swimming have been filmed "on location."

This group of Navy underwater photographers is from the Test and Evaluation Section of the Naval Photographic Center, Anacostia, D.C. Besides testing still and motion picture cameras for underwater use, these photographer-swimmers has performed valuable operational work.

A number of training films have used footage that was shot by the underwater photographers. Some subjects were Explosive Ordnance Disposal, Mine Disposal and Underwater Swimming. You may have seen some of the work of this group, if you saw the initial "Navy Log" television program last September. Most of the underwater scenes on this program, featuring the work of an Underwater Demolition Team, were shot by the NPC group.

Whenever the NPC underwater photographers are on a job, whether it is test and evaluation or operational, the buddy system is a must for safety and maximum efficiency. At no time will a photographer be below the surface by himself.

"You get pretty close to your shipmates," stated Tom Parkinson, PH1,

ALL HANDS



NAVY UNDERWATER PHOTOGRAPHER is snapped by team mate as they pass ship's screw on job. Below: Underwater movie men set up shop for Navy film.



Develop New Fields on Ocean's Bottom

USN, a former member of the NPC underwater photographers, now in UDT support personnel. "This is only natural, since you have to depend on one another when you're below.

"When you're in the ocean depths, it's not too difficult to forget completely what you're supposed to be doing, and begin enjoying the scenery," he explained. "When you start to wander off from your group, to see the other beautiful sights, you can be sure that one of your buddies will be there to rap your air tank and bring your mind back to the job on hand."

Most of the assignments by the NPC underwater photographers have been done between the depths of 30 to 70 feet. Since most of the work has been performed in tropical waters, protection from the cold hasn't been a problem.

"But even in tropical waters, it can get pretty chilly," stated Walter Scallan, PH1, USN, who is at present the petty officer in charge of NPC's underwater photographers.

"What we usually wear in cool waters," he explained, "is a regulation woolen jersey, diver's underwear and a pair of swim trunks. We also have on the face mask, the 70-lb. underwater "lung" and the giant fins on our feet. Naturally, we have a still or motion picture camera in a waterproof case."

When the underwater photographers go on a job, their first item of business after arriving at the site is a conference, in which the leader maps out the job to be done and the part each man will play. The project is then viewed from all angles by the swimmer photographers.

In this way, each man not only understands thoroughly his own job in the project, but also the job of each of his mates. This kind of preparation is of the utmost importance to insure maximum safety and efficiency.

Every assignment presents a new challenge. Besides the swimming conditions, there are a variety of photographic problems faced by the underwater shutterbugs that are not normally encountered on the surface.

In one of the assignments for example, two of the photographers were towed underwater while harnessed to a submarine. Their job:

to photograph a torpedo being fired. Another time, two of the underwater photographers were anchored close to the bottom and photographed a ship as it passed over at about 20 knots.

Although most of the jobs performed by the Naval Photo Center's underwater photographers are classified, they always try to shoot a certain amount of footage, and stills, for library and reference purposes.

Assignment as an underwater photographer at NPC is a much sought for billet, but there are only a few openings. Every man chosen is carefully screened. Besides being a top notch photographer, the man must be in excellent physical condition. In addition, he must be a graduate of the Underwater Swimmer's School at Key West, Fla., where he has learned to use and operate all types of underwater breathing apparatus and swimming gear, and must become an expert in both day and night swimming.

At present, there are more than two dozen applicants for the next opening on the team in spite of the fact that the job does not entitle the underwater photographer to hazardous duty pay.

However, the men at present assigned as underwater photographers don't worry too much about the extra pay, since they feel they are in choice billets. Their duty is interesting and they are getting a chance to round out their photographic skills in an activity that is just beginning to attract popular attention.

Although your chances of assignment as an underwater photographer might be slim, there's nothing to stop you from becoming an underwater photographer in your spare time. Many ships and stations have spearfishing or skin diving clubs, which you could join, and could later include underwater photography in your repertoire.

If you want to, you can follow the example of four sailors of the

GRADUATES OF NAVY'S underwater photo school must know how to use all types of underwater equipment. Here, cameraman walks to shooting location.



cruiser *uss Worcester* (CL 144). So enthusiastic were they on the subject, that they joined together and formed an underwater photography club.

It all started with Nat Fain, SN, USN, a photographer on board the *Worcester*. He wanted to photograph what he'd seen in the ocean depths on his frequent spearfishing ventures. He had all the equipment for underwater fishing, but the problem of photographing deep sea life in its natural habitat still remained for him when he reported for duty on board *Worcester*.

During the course of his regular duties, Fain became acquainted with three other underwater enthusiasts in *Worcester*: Alex Scheffo, ME2, USN, Bob Provencher, FP2, USN, and Bob Brown, DC2, USN.

The four men began battling the subject around, and before long, their talking turned to planning. Using a combination of patience, determination, their Navy-taught skills, and work during liberty hours, the men designed blueprints for a watertight unit that would withstand tremendous pressures and float, yet contain a camera, electronic flash unit and batteries.

They constructed a watertight shell of bronze, complete with control handles extending from the shell, with which they could regulate the focusing dial, aperture opening, lens speed and wind the film. They lacked but one thing: a good place to try out their homemade underwater camera.

Last summer when *Worcester* sailed to the Mediterranean to join the Sixth Fleet the men got their chance. Donning their paraphernalia of swim fins, underwater lungs, spear guns and knives, they searched for rays, eels, and other sea life while Nat Fain, using the underwater camera the four had designed and built, recorded on film their adventures under water.

Their subsurface exploits also included photographing marine archaeology in many Mediterranean ports. In one undersea exploration at the island of Rhodes, Greek amphorae (jugs or vases) were found and photographed. The head of Archæological Research for the Dodecanese Islands proved them to be relics from second or third century B.C.

—Rudy C. Garcia, JOC, USN

Here Are Some Do-It-Yourself

LIKE THE FOUR MEN from *Worcester*, you, too, can become an underwater photographer without too much difficulty. If your ship or station now has a skin diving or spearfishing club, it will make things easier for you.

First, you should qualify as a Navy first class swimmer. Most skin diving and spearfishing clubs have some very rigid qualification tests as a prerequisite to joining. These clubs also have stringent safety rules which might be well for you to review.

Safety and advance planning will save you time, money and worry and will insure better results. There are several books on skin diving, spearfishing and underwater photography which you could read with profit. Many of them are available in the larger ship and station libraries.

Here are some ideas which might help you to begin building a watertight box for your underwater camera.

"It would be best," advises undersea photographer Walt Scallan, "to get a low-priced camera. In this way, if you do happen to foul up, the financial loss won't be too great. And if you're successful, you can safely advance to more high-priced equipment."

Try to get a low-cost wide-angle lens. This type lens has a number of distinct advantages over the standard lens. A wide-angle lens used under-

water will give the same angle of view as a standard lens will when used in the air. A standard lens used underwater will react as a low-power telescopic lens would in the air.

Another advantage of the wide-angle lens is that for a given image size, the object is closer, partly avoiding the fuzziness of the image caused by light scattering. Also, the wide-angle lens has a great depth of field as compared with a standard lens, which must be operated underwater at wide aperture, where depth of field is lowest.

Just about any type camera will work underwater under some conditions. However, when selecting your camera, you should bear in mind such items as ease of operation, fast lens, short focal length and large number of exposure per film load.

Another important thing to remember is this: the larger the negative size, the larger will be the camera and even larger will be the watertight camera enclosure. It is not necessary to have a large negative to obtain a good photograph.

A good, all-around camera is a 35-mm, with a wide-angle lens. Besides being relatively simple to operate underwater, it usually carries a film load of 36 exposures and you should be able to shoot just about all your pictures without refocusing.

You don't need any special type of film for underwater photography. Normal panchromatic film, such as Tri X or Super XX should meet most of your requirements. If you want color pictures, you might try the outdoor speed. The big disadvantage of all color film, however, is its slow speed. A new type "super speed" color film has been placed on the market and if it works as advertised, it should greatly simplify your underwater color photography.

When shooting underwater, you still have the two basic types of light sources: natural and artificial. If a heavy sea is running, you lose a much greater amount of light than when the sea is calm. You should compensate by increasing your exposure.

Occasionally you get a blue or blue-green haze underwater which you can reduce somewhat by using a blue elimination filter with non-color film.

When shooting color film, you almost have to use a filter or filters, since so many colors underwater reproduce in a pastel shade. Color correction underwater is still a very controversial subject and you'll get as many arguments as there are underwater photogs.

A good hint, for taking both black and white and color, is to shoot as many close-ups as possible. Also, make

SHIPMATE photographs A. Scheffo, *USS Worcester* (CL 144) as he explores old ship under Med with a homemade underwater camera box.



Tips on How to Rig a Camera for Underwater Picture Taking

it a practice to take light meter readings with the filter you intend to use covering the photocell. For the best exposure, use the light meter reading given with the published daylight indexes for the film.

If you use a rangefinder, it will give you the exact distance from subject to lens. To the human eye, however, objects underwater appear one-quarter closer. The camera lens "sees" what the human eye does, so if you use a rangefinder underwater, you'll have to compensate for the camera's limitations by cutting the focus down one quarter of the distance indicated.

You'll either have to buy or build a waterproof case for your camera. And if you're intending to use electronic flash or flash bulbs, you'll have to make a waterproof case for that, too. For best all around handling, you might want to get the waterproof case to hold both the camera and flash and battery.

If you are anxious to test your skill, you can quickly make a watertight enclosure by placing a camera, preferably a simple box camera, inside a face mask and cover the back of the mask with a rubber gauntlet glove. To insure further the watertight integrity of this enclosure, place a rubber or metal band around the face mask where it is joined by the rubber glove. The camera controls can be manipulated merely by sticking your hand through the rubber glove.

For a more permanent case, it will take time, tools, a bit of cash, and some ingenuity if you plan to build one yourself. A number of types of materials can be used for building such a case. The four men from Worcester used sheet brass. You could also use copper, plastic, or even wood.

For the lowest cost and ease in construction, you might try wood. A good hardwood, such as cedar, oak or mahogany is suggested.

But if you're not too much of the "do it yourself" type, you can purchase a commercial watertight box that can handle a variety of cameras. Cases for various cameras on the market are available at prices that aren't too high.

The wood you use should be at least an inch thick. The size of the enclosure, naturally, will be determined by the size of your camera. On the front of the watertight enclosure, you can use ordinary automobile safety plate glass. Use rubber gaskets at the edges where the glass and wood meet.

In the back of the enclosure, you have to have an access port through which you put your camera into the box. A metal plate, such as brass, can be used. Again, you have to use



UNDERWATER PHOTO hobbyists swim near bottom while off duty looking for Greek relics and sea life.

gaskets to seal the edges. ("O" ring gaskets are best.)

Use a machine saw to cut the wood to your specifications. For the final assembly, use both animal glue and brass screws countersunk to fit flush. Use outdoor enamel to paint both sides of the box.

If you can avoid it, don't affix your camera permanently in the box. But the camera must be secure in the box, even if you turn somersaults. Instead of bolting the camera to the box, you can place blocks to wedge camera in.

Once you've built the box, you must decide which camera controls you'll make available outside. The fewer openings you have in the box, the more assurance you'll have that it will be watertight. On the other hand, the more controls you have available, the more versatile the unit.

Some controls are absolutely necessary. In the order of their importance, they are: 1) shutter cock and release 2) film reset 3) focus 4) aperture setting 5) shutter speed. The first two, of course, are essential. If you have outside controls for the first four items, you'll have a good unit.

Another thing you'll need on the box is a viewfinder. A simple wire frame at the front of the box with an aiming post at the back should be sufficient.

If you're planning to use flash bulbs for lighting, you can change bulbs underwater since they will withstand as much pressure as the diver. But the usual 3-volt flash gun might not be too dependable underwater since seawater is a conductor and could drain off much of your power.

It is recommended that you devise a higher voltage system together with a condenser. A 22½-volt battery with the condenser should give you enough power to set off the bulb, even though you may have lost some of the voltage through leakage.

Build this battery-condenser circuit right into the watertight box and have

the two leads coming through the box. Make sure you attach the ungrounded lead to the small copper bead that serves as the base contact in the bulb socket. The grounded lead from the battery-condenser is attached to the socket surrounding the bulb at the top of the base.

The leads coming from the battery-condenser circuit inside the box can be extended to serve as an extension cord. This is highly desirable since you'll want the light source in underwater photography as close to the subject as practicable.

If you had the flash bulb attached to the camera, half of the light intensity would be lost in just reaching the subject. What light remained would again be reduced by one half on the trip from the subject to the camera.

Once you've assembled your complete rig, you'll want to make a few test runs. An excellent place for this is the swimming pool. In the relative safety of a pool, you can test your photographic equipment, checking the controls, the field of view, the way the lens will react underwater and the over-all watertight integrity of the camera and flash equipment.

The undersea photographer should spend a good deal of time in the swimming pool, until the operation of his underwater equipment becomes almost second nature to him. Safety is the most important factor. Anything that might possibly lead to difficulty under the sea, which can be discovered and remedied in the swimming pool, will make your underwater photography that much safer and more enjoyable.

And like the underwater photographers at NPC, you should never go on an underwater photography trip without having one man in the water with you, preferably a friend!

DO-IT-YOURSELF Worcester men pose for photo before submerging with camera. (l. to r.) B. Brown, A. Scheflo, N. Fain, and L. Stavalone.



LETTERS TO THE EDITOR

Claim for Lost Clothing and Pay

SIR: How can I draw back pay and a full seabag allowance which has been due me since 1942? Here's the sad story:

I was serving in *uss Astoria* (CA 34) when she was sunk off Savo Island on 9 Aug 1942. Naturally, I lost all my things, including my pay accounts (each man carried his own at that time). Although my pay began again on 10 Aug 1942, I had on the books pay as a seaman first class for the months of June and July and pay as GM3 for the first nine days of August.

A couple of days later, I filed a claim for the lost clothing and for the pay I had on the books. To this day, however, I have not received this money, and I've been told that the statute of limitations now prevents me from collecting.—A.B.B., GM1, USN.

• In view of the time elapsed since you became eligible to submit a claim and the fact that any reimbursement should have been charged to appropriations which have now lapsed, it is suggested that you submit your claim for the clothing and personal effects and arrears of pay to the U. S. Navy Finance Center, Cleveland 14, Ohio, for further transmittal to the General Accounting Office. The claim should show the following information taken from the records: A claim for personal effects and clothing lost on *Astoria* was approved by the Commanding Officer, Receiving Ship, San Francisco, Calif., on 12 Jan 1943. You drew C&SS in the amount of \$27.55 on 15 Jan 1943.

There is no record in the General Accounting Office or in the U. S. Navy Finance Center of the submission of a claim by you for arrears of pay or for the balance of \$89.06 remaining due on the claim approved by the CO, Receiving Ship, San Francisco.—Ed. Francisco.—Ed.

BM's and MM's in the Navy

SIR: Would you please settle an argument between a group of *uss New Jersey* (BB 62) sailors? The question is: Are there more boatswain's mates than machinist's mates in the Navy?—C.S., MM3, USN.

• As of 31 Jul 1955, there were 17,972 machinist's mates and 20,807 boatswain's mates in the Navy. These figures are taken from "Military Personnel Statistics" (NavPers 15658) and include strikers, CPOs and POs in both the Regular Navy and Naval Reserve.—Ed.

This section is open to unofficial communications from within the naval service on matters of general interest. However, it is not intended to conflict in any way with Navy Regulations regarding the forwarding of official mail through channels, nor is it to substitute for the policy of obtaining information from local commands in all possible instances. Do not send postage or return envelopes. Sign full name and address. Address letter to: Editor, ALL HANDS, Room 1809, Bureau of Naval Personnel, Navy Dept., Washington, D. C.

HMs in Submarines

SIR: Can you tell me how hospital corpsmen get into submarine duty, and what pay grades are eligible for such duty.—L.R.G., GM1(SS), USN.

• Hospital corpsmen (HM) in the pay grades of E-5, E-6 and E-7 may apply for submarine training if they meet the following eligibility requirements: 1) have 24 months' obligated service commencing with the convening date of the class to which ordered; 2) be a volunteer for sea duty in submarines; 3) have a minimum combined ARI and MAT or ARI and MECH score of 100 (waiver of 1 to 5 points may be granted if your GCT is 55 or above); 4) be physically qualified; 5) have demonstrated evidence of maturity and emotional and mental stability.

No age limits have been established for submarine duty, since age often does not accurately measure a man's stamina and flexibility. However, when a man over 30 requests sub duty, his commanding officer must comment upon his stamina and flexibility.

In addition to the requirements listed above, certain other points must be considered in determining eligibility for submarine duty. For example, personnel in a transient status may not apply, nor may certain personnel enrolled in naval schools. Your personnel officer and BuPers Inst. 1540.2A are your best sources of information on procedure for submitting a request.—Ed.

Seaplane Duty

SIR: I'm in an aviation rate and am very interested in the possibility of nuclear-powered seaplanes. Could you tell me if it is possible to volunteer for any future work that may be done, or which is now planned, in that field?—J.S.B., AEC, USN.

• At present there is no need for volunteers for this line of work. However, when such a need arises, volunteers will be solicited through Fleet commanders and official channels. So keep your eye peeled, Chief, and in the future you may get in the program.—Ed.

Going into Battle

SIR: It is my understanding that included among the preparations for a ship entering battle was a regulation that crew members in men-of-war must change into clean clothes from the skin out—after taking a shower—as an aid in cutting down the dangers from wounds. By the same token ships in combat zones required frequent bathing and uniform changes.

Can you tell me if any such regulation was in effect, and where it can be located in a published text or manual?—J. S. Jr., Phila., Pa.

• During World War II certain major Fleet commands recommended that men should be offered the opportunity of taking a shower and changing clothing before engaging in actual combat, so it is quite possible that the regulation to which you refer could have originated from your commanding officer or the medical officer of the ship or activity where you were stationed.

Several publications such as "The Bluejackets' Manual" and the "Handbook of the Hospital Corps" encourage the frequent changing of clothing; however, no set regulation could possibly have been adhered to under emergency or other conditions where water was scarce, or clothing was possibly hard to obtain.—Ed.

Attache Duty in Italy

SIR: I have requested assignment to naval attache or naval mission duty in Italy. How are men selected for this type billet, and how many men are on the list for that duty ahead of me?—J.E.W., RM3, USN.

• At present there are six RM3s, including yourself, on the Naval Attache and/or Missions Eligibility List for duty in Italy. Personnel are selected by qualifications and the best qualified man on the list is selected to fill a billet as the need arises. LATE FLASH! Your orders to Italy just came through.—Ed.

Commissioning of Saratoga

SIR: Can you tell me the commissioning date of the new *uss Saratoga* (CVA 60), and what her home port will be?—W.G.W., QM1, USN.

• *Saratoga*, launched 8 Oct 1955, is tentatively scheduled for commissioning sometime in mid-year 1956, with the exact date not yet set. At this time she has not been assigned a home port.—Ed.

Per Diem and Quarters

SIR: It is my understanding that the Navy will provide "bed and board" for its officers and men, or an allowance therefor. However, when I recently put a ship out of commission I spent about 10 weeks at a shipyard 100 miles away from the decommissioning homeport. The ship was completely dead with no facilities for the officers and crew. Berthing facilities were limited for the duty officer and a six-man police duty section. The crew was housed at the local Coast Guard barracks, but there were no government quarters or messing facilities available to the officers. I requested per diem for this 10-week period but it was turned down. Am I not entitled to per diem and what are the regulations that cover this particular type of situation?—R. R. S., CHBOSN, USN.

• Sorry, but you are not entitled to per diem. Officers are paid a basic allowance for subsistence of \$47.88 per month and are not entitled to an additional allowance for subsistence unless they are on temporary duty.

The regulations governing the situation where quarters aboard ship are uninhabitable are contained in Par. 044036-1d, "Navy Comptroller Manual." When a squadron or division commander of a group of ships certifies that quarters aboard a ship are uninhabitable in accordance with the conditions outlined in Para. 044036-1d, the following action may be taken to provide quarters:

Quarters for officers with or without dependents may be hired at government expense whenever government quarters are not available; or, when the hiring of quarters is not practicable the officers without dependents may provide themselves with quarters for the period and will be reimbursed for the cost involved in an amount not to exceed the basic allowance for quarters applicable to their pay grade for an officer having no dependents.—Ed.

Duty in Forrestal-Class Carriers

SIR: The following question has come up many times in discussions among the crewmen of USS Bennington (CVA 20). Does the Bureau plan to request volunteers for the other three Forrestal-class carriers? If so, will members of the Pacific Fleet be eligible for assignment to these carriers?—D. S. J., SN, USN.

• You are probably referring to Alnav 22-55 which states that personnel reenlisting would be given priority for assignment to USS Forrestal if requested and their service could be utilized in that ship.

New construction billets, in so far as practicable, are filled from assignment sources available to the Bureau. After these sources are exhausted, the Fleet is drafted for the balance of the crew. Only the Atlantic Fleet is drafted for ships being constructed on the East and Gulf Coasts and likewise only the Pacific



OLD TIME CAULKERS work on teak deck of USS Baltimore (CA 68) at Mare Island Naval Shipyard. The USS Baltimore goes into mothballs this Spring.

Fleet is drafted for ships being constructed on the West Coast.

About the only possible way you have of obtaining duty in a Forrestal-class carrier is on reenlistment, through exercising Option three or five of BuPers Inst. 1306.25B.—Ed.

Shore Duty for HMs

SIR: In reading the November issue of ALL HANDS, I could not find Hospital Corpsmen listed on the shore duty eligibility list. Was this an oversight or was the HM rating left out for a special reason?—W. F. H., HM1, USN.

• It was not overlooked. Hospital Corps personnel, while maintained on the shore duty eligibility list, are subject to specialized detailing and information on their standing is not adaptable to the chart used for other ratings.—Ed.

No Advancement in Transit

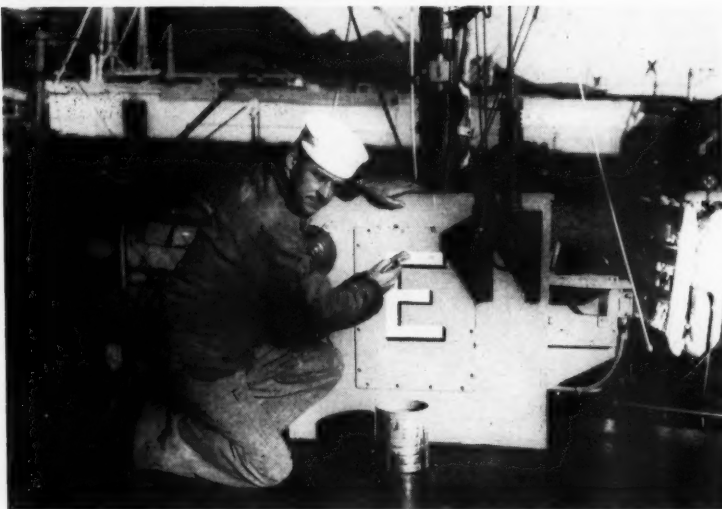
SIR: I will be in transit at the time my advancement to CPO becomes effective. Can I report to any naval activity to be advanced? I find nothing in the books which says this can't be done.—R.A., YN1, USN.

• Commanding officers can effect advancement only in the case of personnel attached to their commands. Therefore, if you are transferred before your advancement date, it will be necessary for you to wait until you report to another command before your advancement may be effected. The effective date of advancement, however, will remain the same.—Ed.

Steward's Specialty Mark

SIR: I am interested in the history of the specialty mark, particularly that worn by stewards in the Navy. Do you have any information on why the half moon is worn and what it stands for?—M. E., SDC, USN.

• In 1866, there was added to the uniform of the enlisted men the first specialty marks in the history of the Navy. A master-at-arms had a white five-pointed star; a coxswain, crossed anchors; captain of the top, an open figure-of-eight knot; sailmaker's mate, a fid placed vertically. From this you may guess that specialty marks in the Navy originally were a representation of the instrument used in performing one's duty. Thus the master-at-arms was the police officer of the ship had the star of authority; the quartermaster used the binoculars; the gunner's mate the cannon; the carpenter's mate the broad axe, and the sailmaker's mate the fid. This custom of having the specialty mark represent as nearly as possible the tool used in a particular rating continues down to the present day with one exception, that being the cook originally had as a specialty mark a ring typifying one of the rings found in the lid on the galley stove. This ring, commonly called by the men, the "doughnut" was subsequently changed to the crescent, and this is the mark the cook or steward wears today. However, a wild guess on the part of several people asked this question is that the crescent might possibly represent the crescent shaped roll which has been a choice bakery delicacy for more years than the steward rating has been established in the Navy.—Ed.



H. A. MONICAL, BM2, USN, paints an 'E' on his Assault Minesweeping Boat after his unit, Mine Division 111, won MinePac over-all excellence award.

Statistics Tell a Story

SIR: U.S. Naval Guided Missiles School, Dam Neck, Va., is in a rather unique position but, during the period 1 Jul 1955-1 Jan 1956, the following statistics tell a story.

Average on board enlisted count—184; number of expired enlistments—19; number of reenlistments—16; average term of reenlistments—5.75 years; total reenlisted time—92 years; reenlistment rate—84.21 per cent.

Can anybody top this?—A.A.S., CDR, USN.

• How about it? If you can, drop us a line?—ED.

Specialty Mark for FTs

SIR: According to U. S. Navy Uniform Regulations both the rangefinder and the gun director specialty marks were authorized to be worn by fire control technicians until the abolishment of the fire controlman rating. Thereafter I understand that only the gun director specialty mark is authorized to be worn.

At the time the rating of aviation fire control technician was established, the specialty mark of a rangefinder with wings was chosen. The rangefinder was retained as a specialty mark since, it was said, it is the traditional symbol of the fire control petty officer and his trade.

In view of the foregoing, I would like to ask if the gun director specialty mark will be retained permanently for fire control technicians and if there is any possibility of the rangefinder being reinstituted as the traditional symbol of the Navy's fire control technicians.—D.F.K., FTC(SS), USN.

• Perhaps you have misread "Uniform Regulations." A footnote to Article

1202.2(a), page 12-5, says this about the status of fire controlman and fire control technician: "The ratings of Fire Controlman and Fire Control Technician are being combined into that of Fire Control Technician. These men will wear the fire controlman's specialty mark. Either mark may be worn until the rating of fire controlman is permanently abolished." According to that, the rangefinder will eventually become the specialty mark for fire control technicians.—ED.

Mess Privileges of POs

SIR: There is an uncertainty on this station concerning messing privileges of first class petty officers. Can you give me the reference which tells when a first class petty officer has a "head of the line" messing privilege if a separate mess is not available?—R.R.B., QM1, USN.

• The administration of a military organization permits and encourages commands to use privileges to enhance prestige and to reward personnel for achievement. There are many examples of long-standing which aptly demonstrate this fact. Here are a few examples:

Staggered expiration of liberty and commencement of liberty for CPO, POs, non-rated men.

CPOs have their own mess tables or mess compartment in many messes, with additional services provided.

The "head of the mess line" privilege is another of these privileges authorized locally which are accorded various groups (in the case you mentioned it applies to all POs) to enhance their prestige and as a reward for their having attained that rate. It is another means for competent authority to demonstrate the respect it holds for various rates.—ED.

Transfer Orders

SIR: The PN in our office says that upon transfer of enlisted personnel, the advance copy and the carbons of the Standard Transfer Orders must be certified to be a true copy.

My argument is that the only copy needed to be certified, if any, is the one the preparing command makes and keeps as a record to show that the man has received his orders and fully understands them.

Art. C-5404 (Para 1) of BuPers Manual does not state whether the advance copy or the carbons have to be certified. All that I have found on this subject states that the preparing command forward one legible copy to all commands concerned. Who's right?—W.B.K., YN1, USN.

• Actually, you're both off base on this question. The only requirement for "certified to be true copies" of enlisted transfer orders is for the payment of claims for transportation of the individual and dependents, and the transfer of household effects and automobiles. Commanding officers may require copies to be certified to be true within their commands. However, this is done at his discretion.—ED.

Toledo's Record

SIR: Could you check the records and determine if I am authorized to wear the Korean Presidential Unit Citation for the time I served on board USS Toledo (CA 133). I was on board from September 1952 until February 1953. Also, could you give me a brief run down on Toledo's history from her commissioning until the end of the Korean war?—H.R.B., LT, USNR.

• You rate the ribbon, as your ship earned one Korean PUC for the period between 8 Sep 1952 until 28 Feb 1953, which coincides with your service. You and your shipmates in Toledo might also like to know that there were two other periods of service listed in this award of the Korean PUC to your ship. Those were the periods of 24 Jul-23 Oct 1950 and 16 Apr-13 Nov 1951.

As for her history, Toledo was placed in commission on 27 Oct 1946. Following her shakedown cruise she made a trip to Tokyo, via the Mediterranean. After a short time operating out of Tokyo she went on to San Diego, Calif., for yard availability and then returned to the Far East. That was a routine tour with no trouble and she returned to the States just before the Korean conflict developed.

Toledo was one of the first ships in the U.S. to set sail for Korea after the fighting began and hit Yangdok in her first bombardment against an enemy. After working over the North Korean coastline she took part in the Inchon landing and bombardment of Wolmi Do.

Toledo and her crew exploded mines,

laid down shore bombardments and provided call fire for the troops ashore. She and USS Rochester (CA 124) provided the only heavy fire support available to the Army in the capture of the Kumod Peninsula.

On her second tour in Korea, Toledo ranged up and down the Korean coast lending aid wherever needed. She moved as far north as Chongjin and Songjin with all guns active.

On at least two occasions her helicopter brought back downed American flyers and in 1951 she recorded several near misses from shore batteries of Communists who immediately regretted their shooting, as Toledo replied in kind and knocked them out.

After another brief respite in the States the ship returned to Korea for the third time. Most of the patrols were classified as "routine," but to the crew they meant months of endless patrolling and endless shelling of Korea. In October 1952 she got her closest call when enemy shore battery shells straddled the ship, but after 48 rounds of five-inch shells had covered the shore battery the incident was closed.

All told, Toledo earned six battle stars during the fighting, in addition to her Korean PUC, which is a fine record. She also earned the China Service Medal.

Any of her crew interested in a more detailed history should drop a line to the Division of Naval History, Ship's History Section, Navy Department, Washington 25, D.C. They'll send a complete history upon request.—Ed.

Classification on MOP Deadline

SIR: I recently read that the Korean mustering-out pay will cease in July 1956. I reenlisted on 14 Aug 1950 for a period of six years and at that time received \$100 MOP for the less than 60-day period from 26 Jul 1950 to 14 Aug 1950. According to current directives, I will become eligible for the other \$200 at the time of my discharge on 14 Aug 1956. Are there any special arrangements for personnel in my case to submit claims after July 1956?—K.C.H., ATC, USN.

• The limitation of 16 Jul 1956, placed on the submission of claims for mustering-out pay on the basis of service in the Korean conflict, pertains only to mustering-out pay incident to a discharge which occurred before the enactment of the Veterans' Readjustment Assistance Act of 1952, approved 16 Jul 1952. This limitation upon the period for submission of claims does not apply in the case of otherwise proper entitlement to mustering-out pay payable on discharge from an enlistment such as yours, since the date of discharge occurs after 16 Jul 1952. Therefore mustering out pay due you would be payable at discharge.—Ed.

Promotion Requirements

SIR: I have the following questions in regard to correspondence course exemptions for promotion and sea duty requirements:

1. If an officer completes all the correspondence courses for promotion to LCDR, can he receive exemption credit for other correspondence courses taken as a LT for CDR? For example, a LT completes a course which is good for one grade exemption—from LCDR to CDR—but is not required for promotion from LT to LCDR. Will this exemption credit still hold good if and when he is selected for CDR?

2. If a LT has completed the correspondence course "Navy Regulations" in 1951 as a LTJG, but did not use this course as an exemption when promoted to LT, will he be required to retake the course again for promotion to LCDR?

3. Concerning sea duty requirements for promotion purposes, what is the selection board policy if a LT does not have the required two years of sea duty in grade? Will the selection board consider this officer, or will it

automatically pass him over?—G. H. L., LT, USN.

• The answer to your first question is affirmative. Completion of a correspondence course earns exemption if it was completed in your present or immediately previous grade. Hence, an appropriate course completed as a LT is applicable to the promotions from LT to LCDR and from LCDR to CDR.

The answer to your second question is in the negative, since retaking a course for the second promotion is not required, even if the officer used the course as an exemption in the earlier promotion.

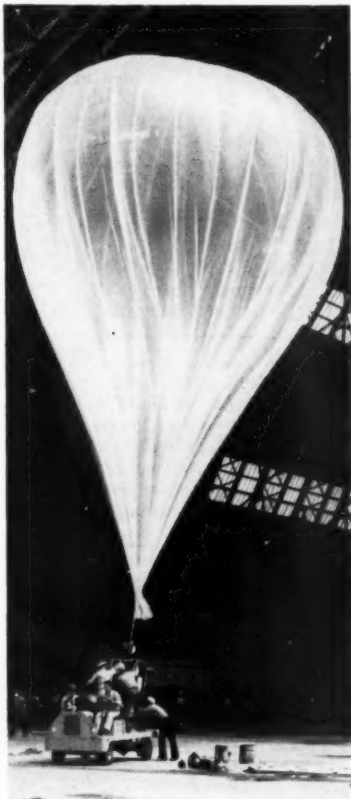
As for your third question, the fulfillment of sea duty requirements is determined by the Chief of Naval Personnel prior to appointment of an officer to a higher grade. It is not a determination made by a selection board. The lack of sea duty assignments could influence the action of a selection board, but it would not operate automatically to cause a failure of selection. An officer selected for promotion to a higher grade who has not fulfilled the sea duty requirement cannot be appointed until that requirement has been met. At such time as the full two years are completed, an appointment would be made with no loss in precedence or pay.—Ed.

Active Duty in Fleet Reserve?

SIR: After twenty years of service, if I should transfer to the Fleet Reserve and later desire to request active duty, would it be granted? How long would I have to remain in the Fleet Reserve before I would be eligible to request active duty and what procedure would I follow?—W.S., BTC, USN.

• If you are contemplating retention on active duty it is suggested that you do not request transfer to the Fleet Reserve. However, a Fleet Reservist may submit a request to the Commandant of his naval district for active duty orders at any time. Once a Fleet Reservist has been released to inactive duty, however, he may be recalled to active duty only if in an "open" rate. At the present time your rate, BTC, is a "closed" rate and if you transfer to the Fleet Reserve and are released to inactive duty, your Commandant could not recall you. However, you could transfer to the Fleet Reserve and make application to your Commanding Officer for retention on active duty. Information concerning retention on active duty in cases of members transferring to the Fleet Reserve is contained in BuPers Inst. 1001.21 and BuPers Inst. 1910.5B.

"Open" and "Closed" rates are governed by the needs of the service, and it is possible that at some future date your rate may be an "open" one, and you would have no difficulty in being recalled to active duty.—Ed.



HIGH IN THE SKY this free flight balloon will drift across ocean, recording weather info while radio charts course.

Roundup on Ship Reunions

News of reunions of ship and organizations will be carried in this column from time to time. In planning a reunion, best results will be obtained by notifying The Editor, All Hands Magazine, Room 1809, Bureau of Personnel, Navy Department, Washington 25, D. C., four or more months in advance.

• **Commanding Officers, Destroyer Escorts, WW II**—The Seventh annual DE Skippers' Reunion and Dinner will be held at the New York Yacht Club, New York, N. Y., on 12 Apr 1956. Further information can be obtained by writing to A. Goodwin Cooks, Room 200, 67 Broad St., New York 7, N. Y.

• **Eighth Beach Battalion**—Shipmates of the Eighth Beach Battalion will hold a reunion in Montreat, N. C., on 6, 7 and 8 Apr 1956. Former members may write to Clifford L. Leger-ton, 263 King St., Charleston, S. C., for additional information.

• **19th Naval Construction Battalion**—The annual reunion of the 19th Naval Construction Battalion will be held in New York City in September, 1956. For further information contact Herbert McCallen, 655 East 14th St., New York, N. Y.

• **uss Boston (CAG 1)**—Former members of this ship interested in attending a reunion to be held in Boston, Mass., on 16 Jun 1956, should write to Ed Fitzpatrick, 200 Amory Street, Jamaica Plain, Boston, Mass., for additional information.

• **uss Chicago (CL 29)**—The 36th annual reunion dinner for 1917-1920 crew of this ship will be held in Philadelphia, Pa., on 14 Apr 1956. For reservations contact Paul A. Kline, 17 West Park Ave., Oaklyn, N. J.

• **uss Helena (CL 50)**—Shipmates who served on board *Helena* will hold their second reunion in the Hotel Jefferson, St. Louis, Mo., on 4, 5 and 6 Aug 1956. Those interested should contact Terence T. Dempsey, 624 Morris Ave., Springfield, N. J.

• **uss Oklahoma (BB 37)**—The *uss Oklahoma* WW I and Commissioning Crew Annual Reunion will be held in the Sylvania Hotel, Philadelphia, Pa., on 5 and 6 May 1956. Write to E. H. Lutz, 673 Lindley Road, Glenside, Pa., for further information.

• **uss Valley Forge (CVS 45)**—A reunion is being planned for all plank-owners of this ship. For further information contact D. R. Rice, QM1, U. S. Navy Recruiting Substation, Navy Post Office Bldg., 56 - 71 Mansion St., Poughkeepsie, N. Y.

• **uss Portland (CA 33)**—Former members of this ship interested in holding a reunion with time and place to be decided by mutual consent should contact John Octon, Larned, Kan.

• **American Nurses' Association**—Navy Nurses (Regular and Reserve) are invited to attend a breakfast to be given at 0730, 16 May by the ANA at the Congress Hotel, Chicago, Ill. Tickets may be purchased in the Exhibition Hall Lobby of the Conrad Hilton Hotel, or at the Navy Nurse Corps exhibit.

• **91st Seabees**—Former members of this unit will hold their seventh annual reunion on 2 and 3 Jun 1956 in the V.F.W. Hall, Sterling, Ill. Contact R. C. Nichols, 511½ Fifth Ave., Sterling, Ill., for further information.

• **Submarine Veterans of WW II**—This group will hold its second an-

nual reunion at the Ambassador Hotel, Atlantic City, N. J., on 28, 29 and 30 September. Further information can be obtained by writing to Hugh Trimble, 1533 Luzerne St., Bethlehem, Pa.

• **Tufts Navy Class of June 1946**—The 10th year reunion of those members of the Tufts University Naval Training Unit who were commissioned in June of 1946 will be held from 7 through 10 Jun 1956, at Tufts University, Medford, Mass. Additional information may be obtained from Fred Weiss, 102-05 86th Ave., Richmond Hill 18, N. Y.

• **uss Advanced Base Sea Dock-2**—Members of this ship will hold a reunion on 27 Apr 1956 in New York City. For details, write to R. E. Ferrara, 3970 51st St., Woodside, N. Y.

• **uss Bassett (APD 73)**—Former crew members will hold a reunion on 2 Jun 1956 in Boston, Mass. Contact R. E. Ferrara, 3970 51st St., Woodside, N. Y.

• **uss Butler (DD 636) and (DMS 29)**—The second reunion of former shipmates will be held in Cleveland, Ohio, during the summer of 1956. The exact date and location of this reunion can be obtained by writing to Ollen E. Peters, Orchard Lake, Mich.

• **uss QUINCY (CA 71)**—Crew members who served on board this ship will hold their fifth annual reunion on 17, 18 and 19 Aug 1956 in the Biltmore Hotel, New York, N. Y. Write to Ed Moore, 173 Carlton Terr., Teaneck, N. J. for further information.

• **uss Pawcatuck (AO 108)**—Former officers and crew of this ship interested in holding a reunion should contact James W. Parks, 406 South Second St., Alhambra, Calif.

Duty in New DDs

SIR: Sometime back I put in for duty aboard *uss Forrest Sherman* (DD 931) after reading a notice that men were wanted on board this ship. Now I see that she is in commission and I haven't heard a word as to whether I'll be ordered to *Sherman* or not. I would like to go to a Navy school but wouldn't want that to cause me to miss getting on board the new destroyer. Can you tell me if there is any chance that I will be ordered to the ship or would I be wiser to go to school?—E.W.C., FN, USN.

• **The allowance of Sherman has been filled and there isn't much chance that you'll get her. However, there are similar ships now under construction and if you are on the ComServLant waiting list, you stand a good chance of getting a new DD in the future.**

If you are not on this list and desire to have your name placed on the waiting list for that type of duty, you may

submit a request in accordance with ComServLant Inst. 1306.5, which your ship's office has on file. Take a look.

As for the school angle, that is a matter strictly up to you and your division officer. We suggest you talk it over with him and your Division chief. They'll give you the straight scoop.—ED.

Drawing Pay

SIR: Are there any regulations concerning the amount of money that a man can "let ride" on his pay record, or is he required to draw a certain amount of his pay each pay day?—J.A.F., PNI, USN.

• **All Navy personnel are paid in full on 30 June and 31 December so that unpaid amounts will not be carried forward to the new Military Pay Record. You are not, however, required to draw your pay at any time other than the end of these pay record periods.—ED.**

Lighter-than-Air Training

SIR: I am a chief boatswain's mate interested in attending a lighter-than-air training school, but have not been able to find any information on such a school. For this reason, I wonder whether the Navy still has such schools open to Fleet personnel, particularly those in the non-aviation ratings.—W.F.A., BMC, USN.

• **The AirShip Non-pilot School of which you inquire was formerly located at NAS Lakehurst, N. J. The school has been disestablished, however, and training is now being accomplished by inservice training in LTA squadrons and activities. In the future, additional training will be provided by Naval Air Mobile Trainer Units.**

At present there are no lighter-than-air training units in the Pacific Fleet. Moreover, there are no billets for BMC in any LTA squadrons. Therefore your chances of obtaining such a transfer of duty at this time are not good.—ED.

KPUC for Arikara

Sir: I commanded the *uss Arikara* (ATF 98) from September 1951 until June 1953. In that period we operated in Korean waters during various periods of 1952, including several tours under CTF 95, CTF 90, CTF 92 and with the British command off the Chinampo River.

I believe that the personnel aboard the ship during that time are eligible to wear the Korean PUC. Am I right?—L.T.S., LCDR, USN.

• You're right. The men who served on board *Arikara* during the periods 2 Jul 1950 to 30 Dec 1950 and 25 Jan 1952 to 9 Aug 1952 are eligible to wear the Korean Presidential Unit Citation ribbon.—Ed.

Changing Rate to AT

Sir: I would like to change my rate to AT and, according to current directives, I'm qualified. I was told by a recent graduate of the AT "A" School that there is a special course offered to men changing their rate to AT, which consisted in part of the AT "A" and "B" courses. Our training officer knows nothing about this.

Where could I learn if there is such a program? Is it open to USNR (TAR) Personnel?—J. H. R., PN3, USNR.

• Since one of the requirements for applying under this program is a minimum of five years' obligated service, personnel in the Naval Reserve are not eligible. Only Regular Navy personnel in certain aviation ratings and pay grades are eligible to take advantage of BuPers Inst. 1440.13 (Change One), which provides training for change of rate to AT, AQ, or GF.

Therefore, your best bet would be to make application for change in rating in accordance with BuPers Inst. 1440.5A

What's My Score?

Sir: I was promoted on 16 Jun 1952. The grade I received on the examination I took for advancement was never made known to me. Could you help me find out what score I made on this exam?—W.R.D., SKCA, USN.

• Scores attained on service-wide examinations are not normally published. Advancements are authorized strictly on the basis of an individual's final multiple. This is a composite figure allowing credit for the examination score, total active service, service in pay grade, and awards earned by the individual.

You can determine your examination score by using the following method: Add credit for total active service, service in pay grade, and earned awards. These figures are contained in NavPers Form 624, a copy of which is filed in your service record.

Subtract the above total from the final multiple listed in the Naval Examination Center Advancement Letter which you received. The remainder will be your score on the examination.—Ed.

which governs changes in rate, rating, and rating symbol by Regular Navy personnel and Naval Reserve personnel on active duty with the regular establishment.

Approval of your request for change of rate would be contingent on your qualifications and the availability of school. The ultimate decision would be made on an individual basis based on the needs of the Navy at the time the request was acted upon.—Ed.

CNATRA Billets for MMCs

Sir: In reading *ALL HANDS*, November 1955, I noticed that there are 79 billets on the SDEL under CNATRA for chief machinist's mates. Could you possibly tell me if there are any of these billets in the Jacksonville, Fla., area?—C. M. H., MMC, USN.

• CNATRA (Chief of Naval Air Training) has activities in every naval district in the continental U.S. The bulk of CNATRA activities are in the Sixth, Eighth, and Ninth Naval Districts. There are 51 MMC billets at CNATRA activities in the Sixth Naval District, two of which are in the Jacksonville, Fla. area.—Ed.

Three Options for Dependents

Sir: I was transferred from permanent duty in El Centro, Calif., to *uss Coral Sea* (CVA 43) at Portsmouth, Va. My dependents were located at El Centro and traveled to my permanent home in Bristol, N. H. On payment of my wife's travel she received mileage allowance from El Centro to Portsmouth. Shouldn't she have been paid m/a for travel from El Centro to Bristol?—L. N. McK., PNC, USN.

• Upon transfer from a shore station to a ship you have three options which you can exercise when it comes time to move your dependents: (1) they can go from your old shore station to either the home yard or the home port of the ship; (2) they can go from a place other than the old shore station to either the home yard or home port of the ship, or (3) they can go from the old shore station to some other spot. However, in all three cases the cost cannot exceed that to which they would have been entitled had they traveled from the old shore station to either the home yard or home port, whichever is greater.—Ed.

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HOW A SUBMARINE'S NUCLEAR

Engineering Plant Description

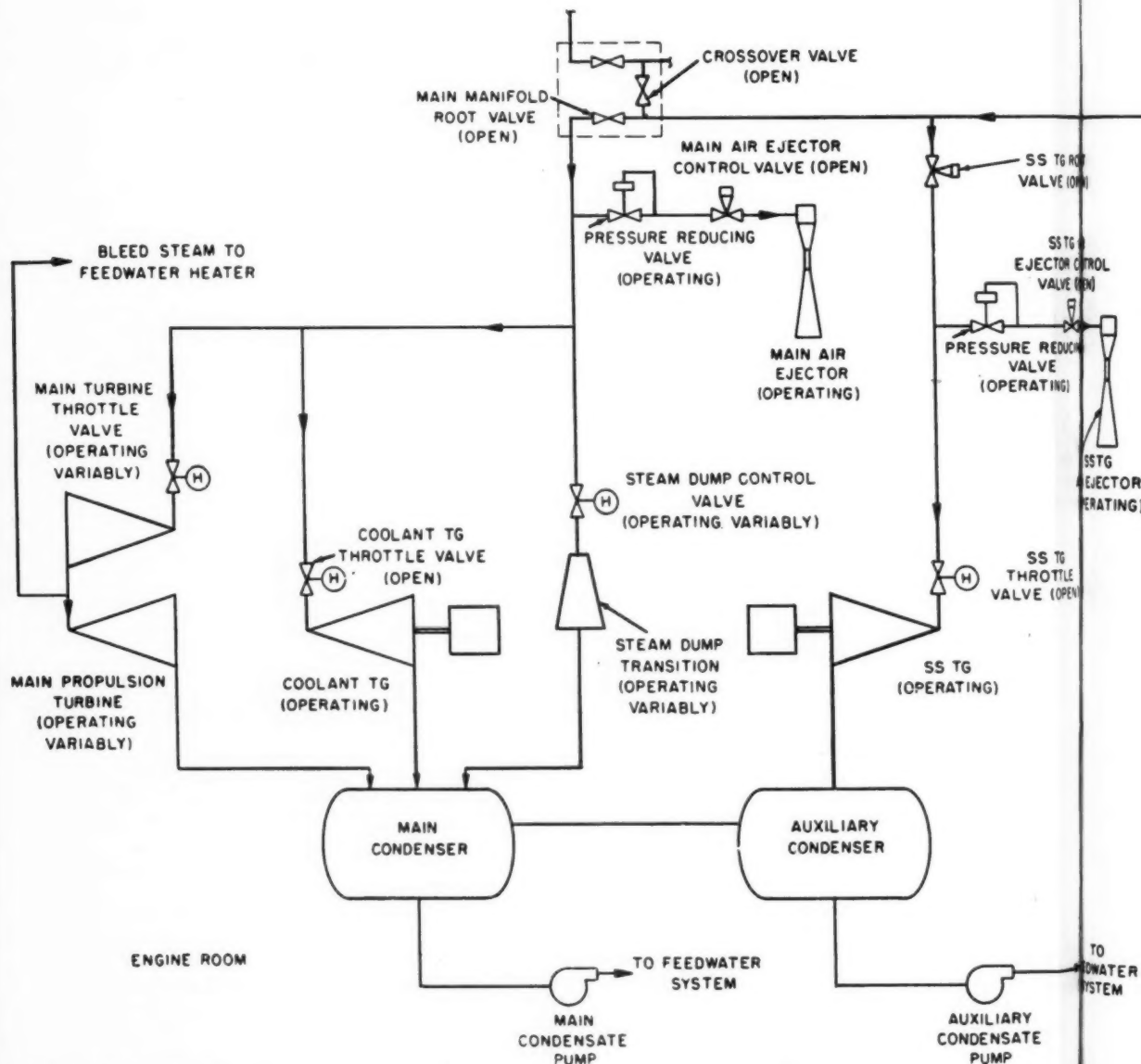
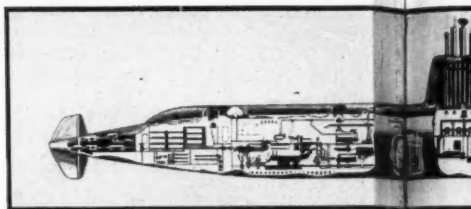
Primary System

The reactor compartment equipment includes one reactor, and the primary loop as shown on the sketch.

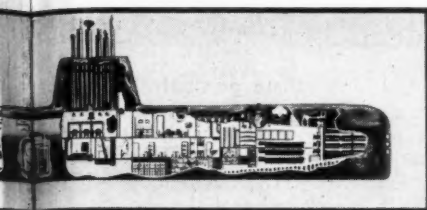
The reactor gives up heat to the pri-

mary coolant water which is then forced through the boiler heat exchanger tubes where it gives up heat to form steam on the shell or secondary side of the boiler. The primary coolant is then pumped back into the reactor where it is again heated up.

The primary coolant water is kept pressurized to high pressure to prevent boiling.



NUCLEAR POWER PLANT OPERATES

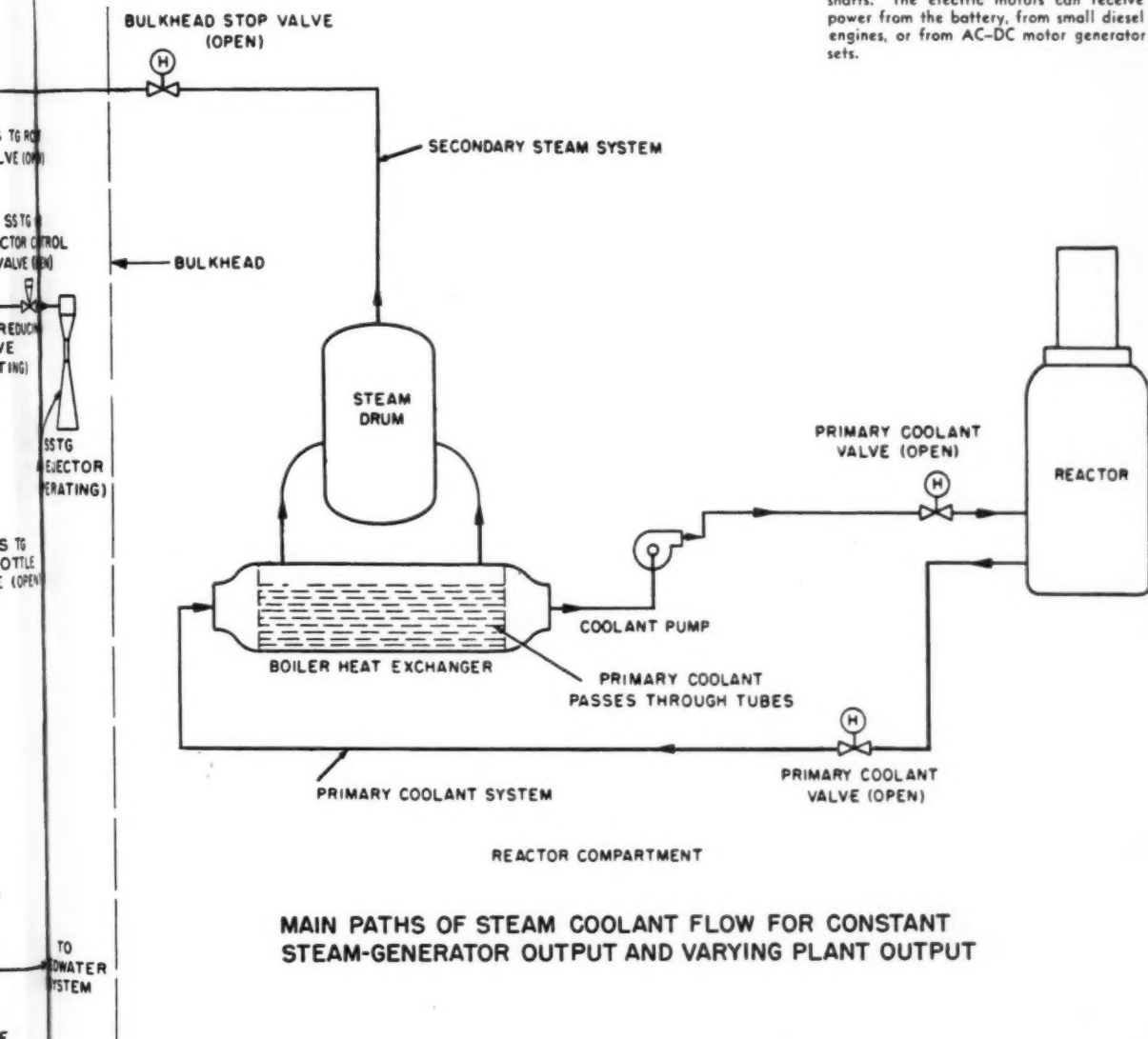


Secondary System

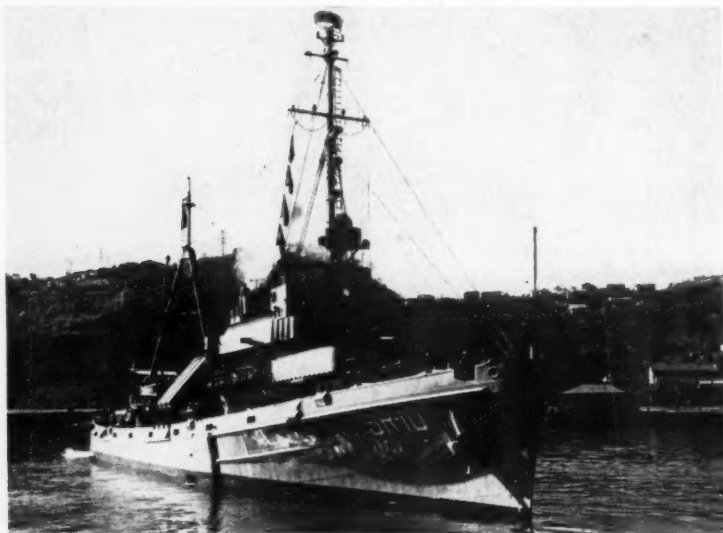
The secondary system is the steam system. It is completely isolated from the primary system since the primary water goes through the tubes of the boiler while the secondary water which is boiling to make steam is on the shell side of the boiler.

Steam rises from the boiler to the steam drum where the water carryover is separated from the steam. The dry saturated steam then flows back to the engine room where it drives ships service turbogenerator sets (SSTG), coolant turbogenerator sets (CTG) and the main propulsion turbines.

Provision is made for unclutching the propulsion turbines and reduction gears from the propeller shafts so that the ship can be driven through the water at slow speeds using electric propulsion motors which are built integrally on the propeller shafts. The electric motors can receive power from the battery, from small diesel engines, or from AC-DC motor generator sets.



★ ★ ★ ★ TODAY'S NAVY ★ ★ ★ ★



ALOHA YOKOSUKA—USS *Greenlet* (ASR 10) leaves Yokosuka harbor en route to home at Pearl Harbor after completing eighth Far Eastern Cruise.

Mock Atomic Explosion

The USN Special Devices Center, Port Washington, N. Y., has successfully completed tests on a mock atomic bomb training device to be used by the Navy for atomic defense training exercises.

The test consisted of the explosion of a training bomb, designed to simulate the mushroom shape of an actual atomic bomb, released from a small aircraft at an altitude of 1000 feet.

The simulated or "mock" explosion was an "air burst." An "air burst," technically speaking, occurs when the bottom part of the "fire ball" or flash is above the ground. If the fire ball touches the ground,

it is called a "ground burst." A similar training device for Army ground forces using the ground burst principle has already been developed by the Special Devices Center and is now being used for training by the Army.

A simulated bomb contains 20 pounds of plastic explosives and 70 pounds of thermite mixture, weighs approximately 160 pounds, and looks like any ordinary bomb. There is no "fallout" nor radioactivity resulting from the test and there is no hazard to personnel in the area.

The bomb, or training device, can be used by Navy ships in mock atomic attack exercises to train personnel in atomic defense damage

control, appropriate preventive action and deployment procedures in the event of an actual air attack. Simulation of the actual bomb burst is highly realistic but non-radioactive. It is expected that the use of the device will considerably improve the Fleet atomic defense training programs.

The Special Devices Center is a research and development activity of the Office of Naval Research. Its main purpose is to provide training equipment to improve the effectiveness of military training in the Navy and throughout the armed forces. Through training aids, devices and training systems developed at the Center, Navy personnel are trained more quickly, more economically, more effectively and without danger of loss of life.

Closed Circuit TV on *Hancock*

Keeping pace with the latest advancements in communications the attack carrier *uss Hancock* (CVA 19) claims to have installed the first closed circuit television to be used by any ship in the Far East.

The carrier's crew can gather at any of six vantage points—from the officer's wardroom to the general mess—and watch special events televised from various parts of the ship, including the flightdeck. The picture is fed into standard 21-inch TV receivers which present the usual local programs when the ship's own transmitters are silent.

There is also a large projection TV set in the hangar bay. Here a picture eight by ten feet can be projected onto the regular movie screen.

The closed circuit TV makes it possible for crewmen who are not on watch or those not allowed on the flight deck during launchings and special events to "see what's going on" aboard the carrier and keep up-to-date on the ship's operations.

In addition, the commanding officer may now address the ship's company in this direct personal way. And the testing of new weapons and the launching of planes with *Hancock's* new steam catapults are first-rate subjects for televising.

YESTERDAY'S NAVY



On 20 Apr 1861 U.S. naval forces under Flag-officer C.S. McCauley partially destroyed the Navy Yard at Norfolk, Va., and burned and scuttled *uss Pennsylvania*, *uss Columbus*, *uss Delaware*, *uss Raritan*, *uss Columbia*, *uss Merrimac*, *uss Germantown*, *uss Plymouth*, and *uss Dolphin*. On 29 Apr 1862 the city of New Orleans, La., surrendered to U.S. naval forces under Flag-officer David G. Farragut. On 4 Apr 1865 President Lincoln arrived at Richmond, Va., in company with Rear Admiral David D. Porter, USN. On 1 April 1945 U.S. amphibious forces landed on Okinawa.

Training in Seastar

A new jet trainer, which can reach near-sonic speeds, is now rolling off the assembly lines and should join the Navy soon.

Dubbed the *Seastar*, the T2V-1 jet is a big advance in trainers. In normal flight the T2V-1 can "step down" its speed to the point where it can poke along like a crop duster or quickly accelerate to near-sonic performance in the 600-mph class.

The *Seastar* will be the first production airplane to take to the air in the Navy's new two-toned, orange and white paint design. It will provide many new safety features.

One of the innovations in the T2V-1 will be boundary layer control, the system which blows compressed air over certain control surfaces of the wing to improve lift and controllability. With it, *Seastar* can ease onto a carrier at 97 mph.

Model Meet at NAS Dallas

Balsa wood and glue fliers will take over NAS Dallas, Tex., 23-29 July, for the Academy of Model Aeronautics, 25th Annual National Model Airplane Championships. Last year's "Nationals" held at NAS Los Alamitos, Calif., was the eighth consecutive contest for which the Navy has been host.

Modelers, 2968 strong, invaded the air station with every conceivable type of flying contraption. A contest of particular interest to Navy men was the "Carrier Event" in which the pilot stands in the center of a flying circle and attempts to land his line-controlled airplane on the deck of a miniature flattop.

The control lines regulate the model's altitude and engine speed. Some of the fancier jobs are equipped with retractable flaps and landing hooks. Arresting cables on the carrier are made of string stretched between two sandbags placed on either side of the flight deck.

Action in the flying circle really gets hot when two or more beefed-up models are engaged in the combat event. Long streamers which fly from the tail sections of the models become the prey of the opposing aircraft. Often, in the heat of battle, an attacker's propeller chews off more than his opponent's streamer, and the area is littered with fragments of the would-be ace.

The events for radio-controlled models are growing in popularity and precision each year. Some models

are equipped with the same type control devices used in Navy drones. For the most part, however, the models are smaller and weigh less than the standard drone. A few scale models of actual aircraft were entered in last year's contest and could have been mistaken for the real thing when in flight.

There was no mistaking the real thing, however, when the Navy put on an air show as part of the program. It featured the Blue Angels, the Navy *Cutlass* Team, an air-sea rescue operation and other events. On the ground there were displays of contemporary jet aircraft, and in hangars, action shots of Navy planes and exhibit booths were set up.

Navy men interested in competing in next year's contest can obtain further information from their local Academy of Model Aeronautics Club, or by writing to Academy of Model Aeronautics, 1025 Connecticut Ave. N.W., Washington, D. C.

Hydro-Skis for Large Seaplanes

BuAer is experimenting at NAS Patuxent, Md., to determine the practicability of installing hydro-skis on future production aircraft, using a PBM *Mariner* seaplane for the test.

The purpose of the tests is to decrease the impacts encountered during rough water landings and take-offs. The tests at Patuxent are expected to demonstrate that the rigid ski mounted on a single strut extending downwards perpendicularly from the hull, acts as a better "shock absorber" for the seaplane on landing than the conventional vee-bottom hull.

The ski being tested is a special model, approximately one-fifth the length of the *Mariner* itself. It is located slightly forward of the plane's center of gravity and has been undergoing tests in three different extended positions, close to the hull bottom, partially extended and fully extended.

Hawaiian Luau, Shipboard Style

Perhaps they were just tired of routine messhall feeding, or maybe it was that balmy Hawaiian night air; whatever the cause, the sailors of *USS Ingersoll* (DD 652) have treated themselves to a *luau*—Texas style—and they pulled it off on the ship's afterdeck while the destroyer was in Pearl Harbor on her way to WesPac.

As most Pacific Fleet sailors know, the Hawaiian feast called a *luau* usually includes such exotic items as roast pig and poi, lomi-lomi salad, and plenty of sand, hot stones and banana leaves—none of them standard in Navy messes.

So *Ingersoll* settled for a menu with a decided Texas barbecue flavor, served in the easy-going Hawaiian manner. With the aid of a grill knocked together from surplus 55-gallon oil drums, the ship's commissary crew turned out a meal of steaks-to-order, served up with baked beans, tossed green salad, potatoes, sliced fresh pineapple and raspberry nectar.

Again, maybe it was just the balmy air, but the topside meal was such a success that *Ingersoll* sailors are looking forward to frequent repeats—maybe even a Texas-style *sukiyaki* party!



FANTAIL BARBECUE for *USS Ingersoll* (DD 652) was cooked by R. D. Fimpel, CSSN, H. L. Fimpel, CS3, R. A. Beaudoin, SCS, and J. W. Box, CS1.



KEEPING THE FLEET on the 'go' a Fleet Type Oiler pumps 'life-giving' fuel to an aircraft carrier during Fleet operations on the high and stormy seas.

News of Navy Ships

Sailors of the carrier Navy have plenty to talk about these days, what with flattops making headlines on both coasts. On the East Coast the mightiest of them all, *uss Saratoga* (CVA 60), has moved from her drydock to a pier at New York Naval Shipyard. "Sara" will undergo dock trials and fitting out at the pierside before she's commissioned in April (at least that's the tentative date). "Sara," incidentally, qualifies for the "mightiest" title by virtue of being 100 tons heavier than her sister ship, *uss Forrestal* (CVA 59). And with *Saratoga* out of the way, New York's Drydock Five is due to take on *uss Leyte* (CVS 32) for routine repair and overhaul.

Along the West Coast:

• *uss Boxer* (CVS 21) has pulled in from WesPac, ready for conversion from an attack carrier to the CVS status—ASW support aircraft carrier. And just in case you think everything in the Navy is speed and more speed, *Boxer's* jet aircraft will be replaced with slower propeller-driven planes since they are better suited to her new anti-submarine warfare mission.

• *uss Bon Homme Richard* (CVA 31), ole "Bonnie Dick" herself, is out of Hunter's Point after a 27-month conversion program which included angled deck and steam catapult.

• The Navy's first assault helicopter carrier, *uss Thetis Bay* (CVHA 1), has been commissioned at San Francisco Naval Shipyard. Before her conversion *Thetis Bay* was CVE 90, a member of the 1942 Anzio-class escort carriers—the famed "jeeps."

• No more "jeeps" are on duty in the Pacific, now that *uss Point Cruz* (CVE 119) has been scheduled for inactivation. From now on, their anti-submarine duties will be assumed by larger carriers which have been modified for ASW missions.

Two battleships have gained notice, one of them with a birthday. The latter is *uss Mississippi* (AG 128), the Navy's oldest ship on active duty. Now serving as an experimental gunnery ship, *Missy* passed her 38th birthday dreaming perhaps of the 667 days during World War II when her guns slammed more than nine million pounds of shells at the enemy. Today, of course, guided missiles have replaced her 16-inch guns. *uss Iowa* (BB 61), which has been undergoing overhaul at the Norfolk Naval Shipyard, has got herself regunned in the process. Repeated firing had worn the lining of her 16-inchers to the point where replacement was necessary, so they were removed and shipped to the Naval Gun Factory to have new linings fitted.

The tin can Navy has also been on the move, with several commissioning ceremonies, and the scheduled transfer of eight destroyers to West Coast duty.

• *uss Wagner* (DER 539) has been recommissioned in Boston. A World War II DE, she got her name from William D. Wagner, USNR, a seaman second class assigned to armed guard duty aboard a merchant ship. In February 1942, his ship was endangered by the shifting of ballast during a hurri-

cane. Wagner—and every other man of the Navy gun crew—volunteered to leave their guns and help put the ballast back where it belonged. While this was going on a submarine was sighted, but the Navy-men got back to their guns and forced the sub to head for bottom before she could do them any harm. Later, a German U-boat got both the merchantman and Wagner, but his sterling conduct had already earned him a niche in naval history.

• *uss Forrest Sherman* (DD 931), number one in a new class of "tin can," has also been commissioned in Boston. Designed as replacement for the WW II Gearing class destroyer, *Forrest Sherman* is being followed by these sisters: *John Paul Jones* (DD 932); *Barry* (DD 933), which has already been launched; *Decatur* (DD 936); *Davis* (DD 937); and as yet unnamed DDs numbered 938, 940, 941, 942, 943 and 944. In addition, funds are available for seven other destroyers of the class.

A new DE has gone down the ways at Bay City, Mich. She is *uss Lester* (DE 1022), a single screw job which incorporates the latest in radar and increased fire power, plus a superstructure which features extensive use of aluminum. *Lester* takes her name from Fred F. Lester, a young hospital apprentice first class who stoically disregarded a mounting fury of Japanese fire to rescue a wounded Marine during action on Okinawa Shima, 8 Jun 1945. Although mortally wounded himself, Lester pulled the Marine to safety and directed the treatment of that Marine and two others before succumbing.

Two other DEs—*uss Muir* (DE 770) and *uss Sutton* (DE 771)—have been transferred to the Republic of Korea under provisions of the Mutual Defense Assistance Program. Henceforth they will be known, respectively, as *Kyongki* and *Kangwon*.

The century-old Mare Island Shipyard has laid the keel for her first—the Navy's fifth—nuclear-powered submarine. *uss Sargo* (SSN 583) will be the first nuclear ship built on the West Coast, the 30th submarine built by the Mare Island yard.

Finally, *uss Salmon* (SSR 573) has been launched in Portsmouth, N. H. A sister ship of *uss Sailfish* (SSR 572), the Navy's first radar picket "boat," *Salmon* takes her name from the



USS FORREST SHERMAN (DD 931), first of Navy's new destroyer class, tests the brine during her sea trials.

WW II craft which, in the last week of October 1944, got herself a Japanese tanker—and a beating from four A/S vessels which left her so beat up that repair engineers couldn't see any point in overhauling her. *Salmon's* retirement was honorable, however, since she had accounted for some 24,000 tons of enemy shipping.

Big news for men interested in attack cargo vessels is the commissioning of *uss Tulare* (AKA 112), a prototype which features the last word in just about everything. A 563-footer, *Tulare* is rated at 18,000 tons and has a speed in excess of 22 knots. Besides the newest of electronic and radar equipment, she has a helicopter landing platform on her stern, while two four-legged masts support booms capable of lifting 60-ton landing craft to and from the sea. San Diego has been selected as her home port.

Other changes in the Fleet include a number of craft either placed in or out of commission:

- *uss Truckee* (AO 147), a fleet oiler of the *Neosho*-class, has been commissioned.

- *uss Skill* (MSO 471), a 750-ton, 165-foot, non-magnetic ocean-going minesweeper, has been commissioned in New York.

- *uss Thor* (ARC 4) has been commissioned as a cable-laying ship. Before conversion for her new duties, she was *uss Vanadis* (AKA 49).

Two other additions to the Fleet are a new minesweeper, *uss Esteem* (MSO 438), and a midget submarine, *uss X-1*. *Esteem* is a 173-foot vessel built of wood and non-magnetic materials and having a maximum displacement of 780 tons. *uss X-1* is the U. S. Navy's first midget submarine—a 50-foot, 25-ton "miniature" which has been placed "in service" after a series of tests and shakedown training. Manned by five frogmen,

the torpedoless submarine was built to help test the harbor defense installations of our coastal ports. Incidentally, she is also the first naval vessel of any kind designed and constructed by a U. S. aircraft manufacturer.

Finally, a number of sturdy craft have entered the limbo of decommissioned vessels:

- *uss Bottineau* (APA 235), an attack transport, has hauled down her pennant in Philadelphia. First commissioned on 30 Dec 1944, she pulled troop carrier duty in the Pacific until placed out of commission in 1948. Three years later she was taken out of mothballs for another tour of sea duty.

- The amphibious force flagship *uss Adirondack* (AGC 15) has been placed out of commission. She is now laid up with other vessels in Sub Group One of the Norfolk Group.

- Other ships joining the Atlantic Reserve Fleet include the landing craft repair ship *uss Menelaus* (ARL 13); the repair ship *uss*

Briareus (AR 12); the attack transport *uss Rockwall* (APA 230); the medium landing ship (rocket) *uss Owyhee River* (LSMR 515); coastal minesweeper *uss Swan* (MSCO 37); and LSTs *uss Monmouth County* (LST 1032), *Cheboygan County* (LST 533), *Clarke County* (LST 601), and the minesweeper *uss Brant* (MSCO 43).

- *uss Markab* (AD 21) has put in at the Charleston, S. C., Naval Base to resume her place in the Reserve Fleet. This 492-foot destroyer tender was taken out of the Texas group of "mothballers" in February 1952 for Korean duty. Since then she has been pulling duty with DesLant. Other craft being placed in reserve include *uss Middlesex County* (LST 983) and *uss Megara* (ARVA 6), an aircraft repair ship (aircraft) originally designed as an LST.

- *uss Bannock* (ATF 81) has gone into mothballs at the Submarine Base in New London, Conn. A veteran of World War II, she operated in both the Atlantic and Pacific, doing towing, salvage and rescue work.

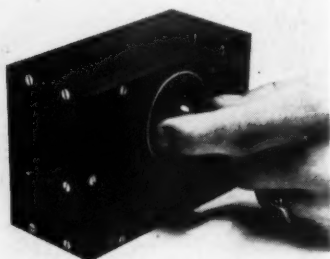
SALTY 'WATCH DOG' *USS Interceptor* (YAGR 8) was commissioned at Charleston. She will head for West Coast to guard our shores against possible attack.



Measuring Radioactive 'Fallout'

Scientists at the Naval Research Laboratory have developed an inexpensive instrument for measuring radioactive "fallout" that is easy to operate and simple enough to be mass-produced for civilian use.

Built of commercially available



components, the new meter is the latest result of NRL's research into the effects of radiation on crystalline materials. Previously, locket-type "dog tag" dosimeters were developed, using glass which changes its luminescence when exposed to nuclear radiation. These have been adopted for use by military personnel. More recently, the same glass has been adapted to measuring higher intensities of radiation as used in medicine, and its use in sterilization and pasteurization of food is being studied.

The radiation-detection element in the new "fallout meter" is a crystalline cadmium-sulphide. Gamma radiation falling on this crystal produces an electrical current which charges a capacitor. When the ca-

pacitor is fully charged, it discharges and lights a neon lamp. This lamp flashes on and off as the capacitor charges and discharges; the rate at which it flashes is an indication of the intensity of radiation present.

An experimental model of the battery-operated instrument covers a radiation range from 0.1 roentgen per hour to 1000 roentgens per hour. A roentgen is a standard measurement of quantity or "dose" of radiation; a lethal dose is generally considered to be between 300 and 600 roentgens.

Navy scientists who developed the instrument felt that a simple and inexpensive fallout meter was necessary for civil defense. Since radiation intensity varies from spot to spot in a single building, such a device would help the user pick the safest shelter area. And it should help prevent panic in an area where no fallout was present, or where the intensity had a negligible value.

Joins Air Defense Team

The first Navy squadron to engage in active participation of the Continental Air Defense Command is Pacific Fleet's All Weather Training Unit at North Island Naval Air Station, San Diego. As a link in the Air Force, Army, Navy and Marine Corps network of air defense—a chain which stretches from San Diego to Alaska and from Savannah to Labrador—FAWTUPac has the southern sector of California as its area of responsibility, with its "alert" aircraft being placed under operational control of the 27th Joint Air Defense Division at Norton Air

Force Base, San Bernardino, Calif.

In ceremonies preceding the squadron's first "alert" scramble under the combined command, VADM Harold M. Martin, USN, Commander Air Force, Pacific Fleet, and Major General Roy H. Lynn, Commander of the Western Air Defense Force, symbolized the Navy's integration into air defense by moving together two sections of cake, each decorated by half of a pair of pilot's wings, one Navy, one Air Force.

Moments later, the scramble horn blasted personnel and planes into action. While North Island's tower cleared the field of all traffic, plane captains started the powerful twin-engined, all-weather F3D jet fighters.

It took less than a minute to start engines and head the planes down reserved taxiways to a special scramble runway. The first jet streaked from the runway in 2:04, the second in 3:15. After becoming airborne, the jets were turned over to a ground-controlled intercept unit for radar guidance to the approaching "enemy" plane.

FAWTUPac, which trains pilots, aircrewmembers and air controllers in all-weather flight tactics, has been training its own personnel night and day for their added mission.

Two CPOs—Two-Thirds Century

Two Navy career men are hanging up their sea bags after splitting 66 years of naval service between them.

Harry F. Menefee, HMC, USN, has retired from active duty after 30 years' service and Walter R. Sellers, ADC, USN, has retired after 36 years' service.

"Spike" Menefee retired from the destroyer *uss Orleck* (DD 886) where he had been a crew member for the last 17 months. He became a CPO in 1940, was appointed a warrant officer in 1942, commissioned to the temporary grade of ensign in the Hospital Corps in 1943, promoted to LTJG in 1945 and reverted to CPO in 1946. He retired as LTJG in the Hospital Corps.

Walt Sellers retired from Fleet Aircraft Service Squadron 110 where he had been the leading chief since 1950. Chief Sellers, who began his Navy career in 1919, has a service-minded family of his own—his two daughters have served in the WACs and his son is at present serving in the U. S. Marine Corps Reserve.



CPOs OF FASRon 110 pay tribute to their leading chief Walter R. Sellers, ADC, USN, as he is 'piped over the side' after 36 years of active duty.

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Air Units Enroll DD As Member

The San Diego-based destroyer *uss Theodore E. Chandler* (DD 717) has been named as honorary member of two naval air units because of the first-rate seamanship and just plain hard work of its crew during search and rescue operations off the northern tip of Luzon, P. I., last fall.

In October, when a Navy P5M *Marlin* was forced down at sea by engine failure on a routine patrol mission, *Chandler*, a unit of DesDiv 111, went to its aid. *Chandler's* crew and the crewmen of the downed plane joined forces to save the plane, being battered by the heavy winds and seas generated by the fringes of typhoon Opal, until a seaplane tender could pick up the damaged aircraft.

Fighting erratic currents, high winds, rough seas and poor anchorage, the two units displayed outstanding seamanship through a long, cold night to preserve the P5M and her equipment. When dawn broke, the situation eased somewhat and the destroyer was able to move in and take the plane in tow. Several hours later, *uss Salisbury Sound* (AV 13) arrived to complete rescue operations and to bring the plane to safety.

In recognition of their work, *Chandler's* crew was awarded honorary membership in Fleet Air Wing One and shortly thereafter the destroyer also became an honorary member of Aviation Patrol Squadron 46 upon the invitation of the commanding officer of that squadron.

Four Airmen Rescued at Sea

A mid-Pacific, midnight swim by four crew members of *uss Floyds Bay* (AVP-40) saved the lives of four of a five-man crew of an Air Force "Flying Boxcar" after a bail out 650 miles east of Hawaii.

When the plane developed engine trouble the crew sent out a "May-day" signal. The small seaplane tender, some 65 miles away, heard the cry for help and quickly sped for the position the plane had last reported.

Despite the darkness, high winds and very rough seas, crew members of *Floyds Bay*, including Thomas H. Watson, BM2; Charles R. Luko, SN; Rex D. Hill, SN; and Thomas E. Neely, SN; located and brought the four flyers aboard.

The four Navymen, swimming with lines from the ship, effected the rescue in a manner that brought them the personal thanks of Air Force officials upon their return to Pearl Harbor.

Despite an intensive search by some 40 planes and 16 ships the fifth man of the plane's crew was never located.

Missouri Makes Good Showing

The state of Missouri has long been known as the "Show Me State," but during the month of January, Missouri showed the rest of the nation as it staged a special "Navy Sign-up Month," designed to encourage the young men of that state to enlist in the Navy.

Backed up with a special proclamation by Governor Phil M. Donnelly, the entire state went all-out in assisting Navy recruiters of the state in the task of insuring that there are always enough men to keep the Navy as the first line of defense.

Throughout the state special billboards and window displays were set up which told the Navy story. Newspapers and radio stations were constantly reminding the citizens of the advantages of the Navy as well as the important part the Navy plays in national defense.

Officials in Missouri had high hopes that this recruiting drive would boost Missouri to the top of the list in national standings, percentage-wise, of men enlisting in the Navy.

Sub Makes Good Will Cruise

uss Jallao (SS 368) recently completed a three-month, 18,000-mile good will cruise on her way home from the Mediterranean, where she completed a tour with the U. S. Sixth Fleet.

She departed from the Island of Malta 20 January en route for the Suez Canal, the Red Sea, African ports on the Indian Ocean, and the Cape of Good Hope. After rounding the Cape, she crossed the Atlantic and visited South American countries en route north to her home port, New London, Conn.

This was the first such cruise to be made by a U. S. Navy submarine.

The itinerary of the *Jallao* included Port Said, Egypt; Massaua, Ethiopia; Djibouti, French Somaliland; and Capetown, Union of South Africa.



GOING UP—S. J. Parillo, QM3, USN, of *USS Baltimore* (CA 68) eyes officer's hat before leaving his ship for Naval Preparatory School at Bainbridge, NTC, where he will train for U. S. Academy. Parillo received a Congressional appointment to the Academy.

The ship's complement includes nine officers and 72 enlisted personnel.

Jallao is a WWII fleet type submarine converted to a guppy. Launched in 1944, she made four war patrols and sank a Japanese cruiser during the Battle for Leyte Gulf in 1944.

Fifty-Niner Hits Jackpot

A snow job won 11 different prizes in a "Name the Newspaper," contest aboard *USS Forrestal* (CVA 59).

The snow job was the work of Richard B. Snow, IC2, USN, and his winning entry in the contest was the name "Fifty-Niner" which now adorns the four-page, semi-monthly ship's newspaper.

Snow's prizes included: A \$25 Savings Bond; a first edition of the paper autographed by the ship's CO and XO; a photograph of the ship; a steak dinner in the CPO Mess; a special shampoo and haircut in the ship's barber shop; a 24-hour pass to sick bay for a rest; a portrait, guaranteed to do justice, by the ship's photographer; blues and whites done specially and with care by the ship's laundry; one free geedunk; two free passes to a local movie theater and last, but far from least, a special head of the line chow pass good for one week.

Navy to the Shores of Tripoli

Winter floods from the mountains struck Tripoli (Lebanon) with such savage fury that, within 15 minutes, they had brought death to approximately 150, injured 520 and left more than 2000 homeless.

As they have done so often in the past, Navy planes responded to the plea for assistance. Air Transport Squadron 24, based in Port Lyautey, French Morocco, spanned the Mediterranean as they transported more than 50,000 pounds of whole milk and C-rations to the damaged city.

As soon as news of the disaster reached Navy headquarters, the commanding officer of VR-24 sent two flights from the Moroccan base to the unit's detachment at Naples, Italy.

Detachment personnel were standing by with foodstuffs that was destined to be the first food in several days for many Lebanese.

Arriving in Italy the planes were loaded down with 25,000 pounds of food, fueled and checked by flight mechanics and sent on their way to the far end of the Mediterranean Sea.

At the tiny airstrip at Klayat, located just outside the city of Tripoli, the Navy crews were met by two large flat-bed trucks that took the food to a central distribution site.

Navy men from VR-24 saw at first hand the destruction and havoc caused by the waters in their wild spree. The streets, four days after the flood, were still submerged under one to two feet of mud and rocks, hindering even light travel.

The waters, reported by authorities to have been around 50 feet

high, buried many cars in garages and in the streets. Others had been hurled through garage doors like toys. Walls ten feet high had been smashed down into piles of rubble or pushed many feet from their original posts leaving a gigantic task for the bulldozers that were already at work cleaning up the debris.

A Nose for the Weather

Specially equipped weather-reconnaissance versions of "flying radar stations" are now being delivered to the U. S. Navy.

The first of the new airplanes, bearing the designation "WV-3," have gone into service with Early Warning Squadron Four at NAS, Jacksonville, Fla.

Designed for double duty as either a long-range radar picket plane or a "hurricane hunting" aerial weather station, the new aircraft is equipped with virtually all of the complex electronic equipment now in the WV-2 plus highly specialized meteorology instruments.

The WV-3 is equipped to tell what's ahead in the air — whether it be invading enemy bombers or "fair and sunny" weather.

One of the first uses of the turbo-compound-engine ships was to fly them into 1955 hurricanes off the eastern U. S. coast. One mission lasted 18 hours, during which the plane spent four hours in the eye of Hurricane Janet.

Much like earlier WV-2 radar-early-warning planes, the WV-3 has a fin-like radome atop its fuselage and a blister-like radome underneath.

Specialized meteorology equipment in the WV-3 includes a unique device which instantly records the rate at which ice forms at various altitudes. Called an "ice rate meter," it replaces former instruments which were limited to measuring ice thickness after it had already accumulated on external surfaces.

Another unusual weatherwise instrument is a fast-acting, electrically operated thermometer. Attached under the fuselage, it features a "probe" which extends into the air stream and is automatically cooled at the same rate at which air flowing against the thermometer would heat its surface. Thus an adjusted reading is obtained which reflects the air's true temperature at the given altitude.

Previous temperature recorders calibrated outside temperature against altitude, humidity and other atmospheric conditions.

Application of the submarine "escape hatch" principle to the WV-3 resulted in installation of a small, pressure equalization chamber for use in releasing radiosonde balloons. It enables the weather-recording balloons to be released from within the airplane, at altitude, without depressurizing the main cabin.

The balloons return to earth, transmitting temperature, humidity and dew point information en route.

The WV-3, like its sister plane, has a galley for meals aloft and bunks for off-duty crews. Cabins are pressurized to maintain 10,600-foot comfort at 25,000 feet. The interior can be kept at 75 degrees despite 60-below-zero temperatures outside.

Top AKA in Pacific

USS Warrick (AKA 89), has been adjudged top ship of her class in the Pacific Fleet for the period of the last fiscal year.

The 13,860-ton cargo ship, which has a complement of 173 enlisted men and 15 officers, is normally part of the Pacific Fleet's amphibious forces, and has been serving since the beginning of the Korean War as a unit in the supply pipeline from the Oakland Naval Supply Center to the Far East and Pacific Fleet.

Pitted against more than a score of similar ships, she won her "top ship" designation in competitive Class 1 of the annual battle efficiency competition by the Commander Service Force, Pacific Fleet.



AIRCREW MEN take in hand an F9F Cougar jet fighter as they spot it on flight deck of USS Midway (CVA 41) during NATO exercises in Mediterranean Sea.

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SIDELINE STRATEGY

Habitability in a YV

uss YV-2 may be small but she boasts a new recreation room that has all the features of her big sisters of the Fleet.

Featuring tiled decks and brightly painted bulkheads, the rec room—which is a remodeled and renovated former storeroom—is equipped with card tables, lounge chairs, a radio-phonograph console, TV set, motion picture projector and screen, and library.

YV-2, the only Navy drone-launching ship of its type in the Atlantic Fleet, gets underway before dawn and usually operates until after dark, so there has been a definite need for a place in which the crew may relax during off-duty hours.

The ship, with its crew of four officers and 40 EMs, is responsible for launching, directing and recovering drones used as targets.

Plank Owner Piped Over Side

The last of the plank owners left uss *Meredith* (DD 890) when Robert E. Johnson, FTC, usn, was piped over the side between two rows of CPOs acting as sideboys.

The salty ceremony ended more than 10 years' service on board *Meredith* for Chief Johnson. He was on board when the ship was placed in commission on 31 Dec 1945 and has seen every member of the ship's first crew leave. For the past three years he has been the only plank owner left in the ship.

Before leaving the Atlantic Fleet destroyer Johnson received a plaque attesting to his years of faithful service which covered eight trips to Europe, 11 trips to the Caribbean and two Arctic voyages.

Twin Careers for MM1 and DDE

Norman M. Johns, MM1, usn, is a plank owner and he has his own personally engraved plank to prove it. Johns was presented his plank by the skipper of uss *Carpenter* (DDE 825) in recognition of Johns' six years of service aboard the escort destroyer.

After graduation from recruit training and the Class "A" Machinist Mate School at Great Lakes, Ill., Johns reported aboard uss *Carpenter*. He sailed in that ship from the day of her commissioning in December 1949 until November 1955. During that six-year period, Johns went up the promotion ladder from MMFA to MM1. He was the last of *Carpenter's* original crew to leave the ship.

WHEN Navyman Logan Reid Patterson entered the University of Georgia in 1950, he knew enough about swimming to stay afloat, but not much more. He must have been an apt pupil because today he holds the national intercollegiate 100-yard freestyle record and is viewed as the outstanding prospect for swimming's most coveted crown—the Olympic 100-meter freestyle championship.

The 23-year-old All-America swimmer is also co-holder of the new world's 200-meter medley relay record. Patterson, who was graduated last month from recruit training, is now assigned to the Bainbridge Naval Training Center. Having already submitted his application to participate in the Olympic swimming tryouts next summer, Patterson should be one of the Navy's outstanding candidates for the team.

Despite the fact that he knew nothing about competitive swimming when he entered college, Patterson went out as a freshman and won the Southern AAU backstroke championship. As a sophomore, he placed fifth in the National Finals in the 100- and 200-yard backstroke.

During his junior year, Patterson switched to freestyle swimming and won the National Collegiate and National AAU championships. In his senior year, Patterson broke two American swimming records. In a dual meet between the Universities of Georgia and Florida, he set his 100-yard

freestyle, long-course record, covering the distance in 51 seconds, which replaced the old mark of 51.4 seconds.

Shortly after, in an official attempt to break the American record for the 110-yard course, Patterson swam the distance in 57.6 seconds, beating the record by seven-tenths of a second.

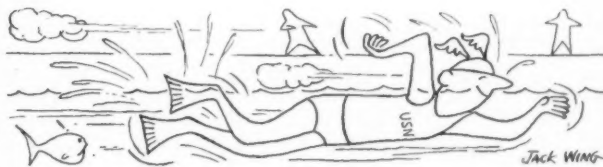
In the summer of '55, Patterson participated with the U.S. team in the quadrennial U.S.-Japanese Swimming Meet held in Tokyo. He won the 100-meter freestyle in 57.2 seconds, a time that tied the record for that contest. He also helped break the world's 200-meter medley relay record during that time.

★ ★ ★

The only Navyman to be chosen for the U. S. Olympic team to the Winter Games was Ensign Tom Corcoran, USNR, of the escort vessel uss *Howard D. Crow* (DE 252). He was selected to the nine-man Alpine Ski team. In the Olympic Giant Slalom, Corcoran finished 14th in a field of 80 skiers.

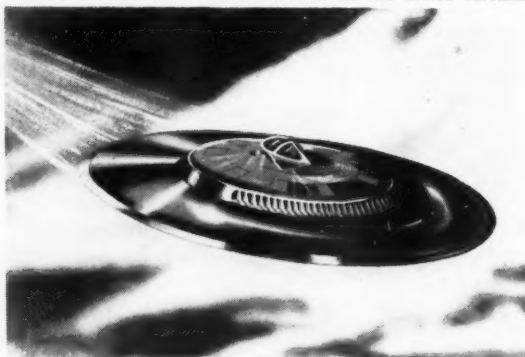
Other Navymen who tried out for the U. S. team but were ultimately cut from the squad included: Ensign G. H. B. Gould, USNR, of uss *Coates* (DE 685); LTJG Walter Greeley, USN, of uss *Leyte* (CVS 32); LTJG Tom Carroll, USNR, of Newport; LTJG Henry Bothfield, USNR, of uss *Stoddard* (DD 566); Ensign Leonard Dartt, USNR, of NTC Bainbridge; and Sherman Saltmarsh, SN, USNR, of RecSta Boston.

—Rudy C. Garcia, JOC, USN.



SERVICESCOPE

Brief news items about other branches of the armed services.



NO LITTLE GREEN MEN. This is a conception of vertical rising, disc-shaped aircraft under development for USAF.

★ ★ ★

NO NEEDLE is needed with the new inoculation mechanism being tested at Walter Reed Army Medical Center. It gives promise that someday the Army's soldiers may receive quicker and practically painless inoculations.

This automatic injection syringe works on the principle that fluids propelled at great speed will penetrate human skin without bodily harm. To spray, the doctor or nurse places the end of the syringe against the arm and by pressing the release trigger completes the inoculation in eight-tenths of a second. The second trigger then reloads the device.

More than 10,000 soldiers have been injected with various vaccines using this automatic multiple dose syringe.

★ ★ ★

SIX-FOOT, 200-POUND DUMMIES, as nearly like the human body as sponge rubber, steel skeleton and a cast aluminum skull can make them, have been taking rides on a supersonic rocket sled at Edwards Air Force Base, Calif., to provide U. S. Air Force pilots with a reliable escape system in the event of an emergency bailout.

Tests have been made with an actual nose section equipped with the standard pilot escape system of the F-102A all-weather interceptors.

Out of these tests has come new knowledge of the forces that tear at a man as he is catapulted into the air blast streaming past a supersonic aircraft.

Already, this knowledge is being translated into life-saving improvements to the latest type of pilot escape equipment.

Harnesses keep the pilot more firmly strapped down until the precise moment for his automatic separation from the seat and deployment of the parachute.

New helmets, affording greater protection for the pilot against wind blast and supersonic noise, are being developed. Different types of parachutes also are being tried out.

In the F-102A ejection system, a pilot in an emergency condition can bail out of the interceptor in just two seconds, even at supersonic speeds. If forced to abandon

the aircraft, the pilot raises the hand grips on the seat arm rests to dump cabin pressure and jettison the cockpit canopy. The shoulder harness, securing the pilot in his seat, is also automatically locked.

The pilot presses the seat ejection trigger and the seat is catapulted out the cockpit by an explosive charge. The ejection cycle is completed in about a half second.

Two seconds after the seat has safely cleared the F-102A, the pilot's lap belt and shoulder harness automatically open, separating the pilot from the seat and at that instant pulling the lanyard that deploys the parachute.

★ ★ ★

UNDERGOING FIELD TESTS and evaluation as a communications device for squads and other small tactical military groups in the field is a transistorized instrument tiny enough to be carried in a shirt pocket, yet powerful enough for two-way communication over a quarter-mile range. The Signal Corps is testing the miniature FM radio at Fort Carson, Colo.

A completely self-contained and self-powered radio, the transistorized transceiver houses a receiver-transmitter, microphone-earphone, collapsible antenna, and a battery in a single compact assembly which weighs only 15 ounces and is approximately the size of a small tobacco tin. Its measurements are 5½ inches high, 3 inches wide, and 1 inch deep. It is designated for operation in the 45-to-50 megacycle band.

★ ★ ★

SNOW AND ICE at Hopedale, Labrador, are under investigation by the Air Force to determine their usefulness as landing fields for modern aircraft.

Today, with aircraft more and more needed in the Arctic, where other methods of transportation are difficult, if not impossible, the problem of safe landings and take-offs by heavily loaded aircraft has reached major proportions.

To solve this problem, the Air Research and Development Command, supported by other U. S. agencies and Canada's Defense Research Board, is conducting a series



SPECIAL DELIVERY—Copter delivers 2.5 tons of 105mm howitzer. This is first time complete gun has been lifted

of tests at Hopedale. Working in near-zero temperatures most of the time, the research team will perform a number of tests and investigations.

These include excavating large ice beams and loading them to the breakage point, cutting cylindrical samples of ice for measurement of their crushing and breaking strengths and measuring the sag or deflection of ice sheets by moving or static loads.

One of the devices to be used will be a large metal tank, into which water will be pumped to create loads up to 80 tons on the ice.

Scientists will explode charges of TNT at ranges from 50 feet to a mile away, to measure the elastic properties of the ice by studying the rate and direction at which shock waves are carried through it.

Helicopters will also be used. They will carry pointed projectiles of varying weights to differing altitudes. The projectiles will then be dropped onto the ice and the resulting crack patterns will be studied.

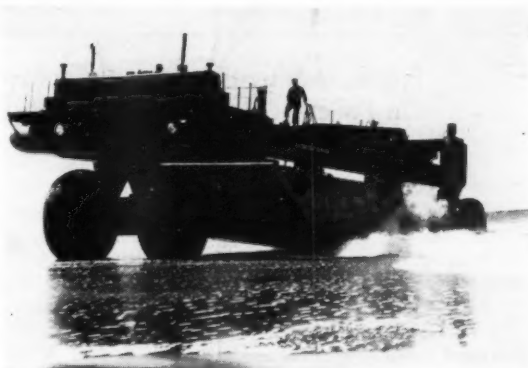
Another area of investigation will be the rate of growth, thinning of ice sheets. Studies are scheduled of the effects of solar radiation, measurement of the ice, air and water temperatures, salinity of the ice, and the role of weather such as winds, air temperature changes, or change in snow cover depth.

Microscopic study of the individual ice crystals as they grow together to form ice sheets will be made.

When spring arrives, another study will be the measurement of the change in the ice or snow cover thickness when it is covered artificially by various substances which change the absorption of the sun's heat.

The ice thickness that will be found by the Arctic research team will be about 40 inches, with an uneven snow cover ranging up to three feet in depth. In addition to temperatures that may dip as low as 40 below zero, the men expect to encounter winds as high as 80 miles an hour during the frequent snow storms.

The target of the entire research project is to obtain improved and more reliable tables of load-bearing strength of sea ice, and to develop an airborne indicator of ice thickness and strength for use by aircraft intending to land in previously unexplored areas.



LOTS OF PICK UP in this Army vehicle. New landing craft retriever brings in crippled craft during landing operation.

A NEW VEHICLE designed to recover stranded landing craft is now being tested by the Army Transportation Corps.

Labeled the Landing Craft Retriever, it is an intricate arrangement of hoists, wheels, and engineering power which straddles a vessel and lifts it from the water. The retriever can "right" a capsized or broached craft, transport it to deeper water, or carry it bodily out of the water and onto shore.

The LCR is able to enter water at depths up to eight feet—pick up the damaged craft and climb ashore over beaches having grades as steep as 20 per cent.

The retriever weighs 101 tons, is a four-wheeled, diesel-electric, self-propelled vehicle, 75 feet long, 38 feet wide and 22 feet high. It was designed to operate from the beach seaward to a water depth of six feet, but tests indicate successful operation in eight-foot depths. It is capable of lifting any landing craft up to and including the 67-ton LCM-8.

A system of electric switches makes it possible for one man to handle all operations of the unit, although a crew of three is maintained for attaching hoist cables to grounded or capsized craft.

★ ★ ★

A NEW LIGHTING SYSTEM in radar rooms which provides greater efficiency and accuracy for radar scope observers (while retaining compatible working conditions for other personnel working in the same room) is being developed by the Air Force.

Although a darkened room affords greater efficiency for radar scope observers, it is a handicap for others who have to work under the same conditions. The new system solves this problem. It provides for general blue room lighting for maintenance and other personnel not observing the radar scope. At the same time, a transparent orange filter placed on the radar scope gives the observer a picture whose clarity is only slightly reduced by the blue light. By wearing orange goggles, the radar scope observer may completely darken the room for himself.

Preliminary tests have proved to be satisfactory, and indicate near optimum working conditions for both the observers and maintenance personnel.



TOO HOT TO HANDLE—Army fireman at Okinawa ammo depot uses tank with dozer blade to snuff dangerous fires.

THE WORD

Frank, Authentic Advance Information On Policy—Straight From Headquarters

• **NUCLEAR TRAINING FOR SURFACE SHIP SAILORS**—The first announcement of training for enlisted men, other than qualified submariners, in the nuclear power field has recently been released. Both ComServLant and ComServPac have nominated qualified personnel under their command for the program, in compliance with a request issued to CinCPacFlt and CinCLantFlt by the Chief of Naval Personnel.

Men selected for the surface nuclear power training will be sent to Idaho Falls, Idaho, for their instruction and will be slated for duty aboard the first nuclear powered surface ship or the land prototype for the first nuclear powered surfaced ship.

Men attached to fleet commands in the ratings of ET, MM, BT, EM, IC, MR and FP may be eligible

for the program if they meet the requirements. They must be highly motivated; not over 30 years of age; have a high school diploma or a GED certificate; and have a minimum score of 55 in their GCT, ARI, and MECH or MAT tests. In addition they must have a clear record.

At present all enlisted personnel for the program are being selected from the fleets after nomination by their respective service force commanders. Personnel selected will pioneer in a new and expanding field the far reaching effects of which can only be estimated at this time.

Personnel will receive highly specialized theoretical and practical training similar to that presently given to submarine personnel in training for assignment to nuclear powered submarines.

• **EDO, AEDO, SDO APPLICATIONS**—The Chief of Naval Personnel is now accepting applications from permanently commissioned officers of the Line of the Regular Navy, for designation as Engineering Duty, Aeronautical Engineering Duty or Special Duty Officers. Applicants not above the grade of lieutenant are eligible.

Categories in which candidates may apply are as follows:

Engineering Duty: General (Code 1400), Electronics (Code 1400), and Ordnance (Code 1450).

Aeronautical Engineering Duty: General and Electronics (Code 1510), and Aerology (Code 1530).

Special Duty: Communications (Code 1610), Naval Intelligence (Code 1630), and Public Information (Code 1650).

Applications are particularly desired from officers who have completed a postgraduate course of instruction associated with these specialties and from aviation officers (Code 1350) for designation for Aeronautical Engineering Duty.

Applications are not desired from permanently commissioned warrant officers now serving in a temporary grade of ensign or above.

Applications should be forwarded via official channels and cognizant

material bureaus, the Chief of Naval Operations, or the Chief of Information, as appropriate. These requests must be submitted in time to reach the Chief of Naval Personnel (Attn: Pers B1137) by 16 May 1956.

The Chief of Naval Personnel will acknowledge receipt of each application. The requests of qualified applicants will be referred to special selection boards which will be convened in the Navy Department on or about 31 May 1956. Each applicant will be advised by letter of his selection or non-selection on about 16 June 1956.

• DEPENDENTS' MSTs TRAVEL

Dependents of personnel attached to ships and units operating rotationally in overseas areas are not eligible for transportation on MSTs ships, according to a recent ruling by the Chief of Naval Operations. BuPers Inst. 4650.8A points out, however, that special cases of ships and units spending long periods of time outside the continental United States will be considered on an individual basis.

• RESERVE PAY CHANGE

Active duty pay and travel allowances currently authorized for Reserve personnel being released from active duty may now be paid at the time of release, and without regard to whether the travel is actually performed, according to Alnav Two. Previously such payments have been made after release from active duty and after receipt of copies of the release orders containing an endorsement which stated the method of travel, itinerary and the inclusive dates of travel.

The Alnav also states that: 1) For Reserves released from a period of active duty which amounted to less than 90 days, travel time to the member's home of record at the time ordered to active duty will be based on the actual and necessary public surface carrier schedules over the



PASS THIS COPY ON — Nine other men are green-eyed because you're holding up ALL HANDS Magazine

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shortest usually traveled route; and 2) If the period of active duty was 90 days or more, travel time will be computed as above, except that if travel by private conveyance is specifically authorized in the orders, travel time to the member's home of record at time ordered to active duty will be computed on the basis of one day for each 300 miles, and one day for a fraction of 300 miles in excess of 150 miles.

When travel by private conveyance is authorized, travel status will be considered to begin on the date following the date of detachment, and distances will be determined in accordance with *Joint Travel Regulations* (Par. 4155).

Current instructions for the payment of pay and allowances for travel time incident to release of Naval Reservists from training duty remain unchanged.

• AIR CONTROLMEN — Air controlmen have been added to the list of rates who may not select any of the various options granted enlisted men on reenlistment under the provisions of BuPers Inst. 1306.25B.

The air controlmen were added to the list because of the distribution needs for this highly specialized rating. However, they can, upon reenlistment, express four choices for duty if they desire reassignment. In such a case every effort will be made to assign them duty in accordance with their preferences.

In another change to the instruction, four receiving stations have been listed which will provide places of reenlistment where there are no main recruiting stations in the area. These will reenlist men who have been out of the Navy more than 24 hours, but less than three months.

They are the Naval Receiving Stations at: Norfolk, Va.; Charleston, S.C.; Long Beach, Calif.; and San Diego, Calif.

• WO APPOINTMENTS — Seven more Navy men, including a Wave chief petty officer, have been appointed to the rank of warrant officer, W-1 with appointments effective upon acceptance.

The Wave, Alice G. DeAngelo, YNC, USN, was appointed a Ship's Clerk and upon acceptance became the only woman Warrant Officer, W-1, on active duty and fifth woman WO currently on active duty.

• SELECTED FOR OCS — The Chief of Naval Personnel has announced the names of 225 outstanding enlisted men in the Regular Navy who have been selected for training at the Officer Candidate School, Newport, R.I. Upon successful completion of the 16-week course at OCS, the candidates will be appointed ensigns in the Line or Supply Corps of the Regular Navy.

The OCS selection board picked 200 men as line candidates and 24 men as candidates for the Supply Corps. One Wave was selected for appointment in the Regular Navy line.

Those selected for the Officer Candidate School were part of the "seaman-to-admiral" integration program. They will receive Regular Navy appointments.

Other OCS candidates, coming from colleges and universities, are appointed ensigns in the Naval Reserve upon graduation.

Navy men who applied for an appointment under the integration program will not be notified individually of their selection or non-selection. Those who were selected have already received their orders to OCS.

• ACCOUNTS OF DECEASED PERSONNEL — As the result of a recent law passed by Congress, the Navy may now make payments directly to beneficiaries of deceased personnel when settling the accounts of such personnel — if a beneficiary or beneficiaries have been designated by the deceased. (See also page 53.)

Previously such accounts were turned over to the General Accounting Office for settlement of any unpaid pay and allowances, with payment being made to the estate of the deceased, the next of kin in the order of precedence specified by the law, or distributed to the persons determined to be entitled to it. This former less direct procedure naturally results in delayed settlement.

Under the new Act, GAO will continue to settle accounts of deceased personnel in cases where no beneficiary has been designated.

However, if a Navyman has on record a designated beneficiary — and keeps the record up to date — the Navy can make rapid payment of any pay and allowances due on the date of his death.

Full details may be found in BuPers Inst. 1760.15.

QUIZ AWEIGH

How much do you know about the Silent Service?



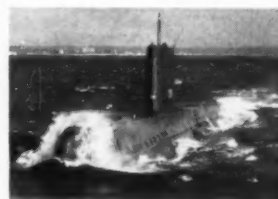
1. This is a port bow view of the guppy-snorkel submarine USS Sea Leopard (SS 483). A modern submarine of this type is closest in length to a (a) basketball court (b) ice hockey rink (c) football field.

2. If a sub is caught on the surface by enemy ASW ships or aircraft, it can submerge in less than (a) 50 seconds (b) 20 seconds (c) 90 seconds.



3. These men are receiving instructions in the use of the Momsen Lung. The primary use of this piece of equipment is for (a) RBA — rescue breathing apparatus (b) escape from a submerged submarine (c) underwater swimming.

4. The effective use of the lung, which is named after its inventor, Vice Admiral Charles B. Momsen, USN (Ret.), is limited to water depths of (a) 100 feet (b) 200 feet (c) 300 feet.



5. You should easily recognize this submarine as the USS Nautilus (SSN 571). The first submarine in the Navy, USS Holland, had a displacement of 75 tons. Nautilus has a surface displacement of approximately (a) 500 tons (b) 1500 tons (c) 3000 tons.

6. Nautilus, the only atomic-powered ship in operation in the U.S. Navy today, first radioed that she was "underway on nuclear power" on (a) 17 Jan 1955 (b) 24 Oct 1955 (c) 18 Jun 1955.

ANSWERS ON PAGE 57.

THE BULLETIN BOARD

Here's How Navy Wives Get Their Queen Allotment Checks

ALMOST EVERY NAVYMAN sees his disbursing officer on payday, but few Navy wives ever have a chance to meet *their* special disbursing officer. He is represented by the Allotment Division of the Navy Finance Center, Cleveland, Ohio.

The "ladies' disbursing officer" is too busy to be very social. The payment of allotments is big business. In addition to the 300,000 checks which go to Navy wives, some 200,000 are mailed to pay for Navy insurance and 400,000 go to other dependents, to savings and commercial institutions and for miscellaneous purposes. These 900,000 checks add up to an expenditure of approximately \$60,000,000 every month.

This sizeable disbursement deeply affects the lives, welfare and happiness of a large percentage of our Navy wives and their wives—not to mention their creditors.

The Finance Center is exceedingly proud of the fact that all allotment checks are now mailed on the last day of each month and, at the same time, overpayments from unauthorized releases and late receipt of stop authorizations have been reduced to the lowest point in its history. It has reason for its pride.

Chances are, you wouldn't recognize a stop authorization if you stumbled over one, but accountants and administrative personnel can fully appreciate the significance of the stepped-up mailing date. Nevertheless, the story of the problems involved and how the Allotment Division solved them will give you a good idea of how the division works and demonstrates the efforts made to render Navy wives and dependents the best service possible.

Earlier, all Queen allotments were mailed on the second day of the month following the month for which payment was due. Checks for December, for example, were mailed on the second of January. All other allotment checks were mailed on the fifth day of the month following the month for which payment was due. This frequently meant that a Navy

wife, living in a foreign country with her husband would find her rent, light, heat and other payments due on the first of the month and her allotment check would not arrive until the 10th of the month, or later. This made for certain strains on occasion and didn't help the family credit.

However, stepping up the deadline was not simple. Here are some of the factors involved:

- Checks for more than 900,000 allotments must be mailed each month.

- Each check must be printed, signed, inserted in envelopes and sealed by mechanical equipment. The use of this equipment means that all operations must run exactly on schedule.

- Any upward revision of the mailing schedule would require the use of more equipment and thus greatly increase costs.

- Mailing all allotment checks on the last day of the month would burden the Post Office with more than half a million checks, since retired and retainer checks are also issued on the last day of the month by the Finance Center.

- Money cannot be paid before it is earned. Each monthly allotment payment covers the money earned from the first to the last day of the month.

- Overpayments would increase.

- Changes of address cannot be processed as late as the last day of the month. This is always a problem,

as the Allotment Division receives about 20,000 changes of address a month.

- Because of earlier mailing dates, there would be a delay in processing increased allotment payments.

For these reasons, earlier attempts to advance the mailing date of checks just hadn't worked. The last three factors gave the most trouble, because any improvement in good will and morale created by more prompt receipt of checks was more than offset by these three factors.

The accounting gimmick employed was the "suspense voucher." In essence, a suspense voucher permits a great proportion of the work to be processed in other than peak periods. For example, all late receipts are put in "suspense" and handled to the very last minute as a separate voucher, then merged after the checks have been mailed.

While this might not make much sense to you, the effect that the suspense voucher produces does make sense. Why? It enables *all* checks to be mailed on the last day of the month (with little, if any, increased cost to the Government).

In its efforts to prevent erroneous mailing of checks, and to get checks to its payees as soon as possible, the Allotment Division has always processed requests to discontinue allotments and changes of address until two hours before actual mailing time. With the advanced mailing dates, the increased late stops and changes of address to be processed became a serious problem. Today, all orders to stop payments received within 24 hours after the checks have been mailed result in a message to the appropriate postmaster requesting return of the checks.

The Allotment Division also makes every effort to speed up new allotment payments received *after* the established receipt date. For example, all orders to start payment received up to the 26th of the month are specially processed so that a check can be mailed on the last day of the month. Start orders received

All-Navy Cartoon Contest—
N. F. O'Connor, AGC, USN.



"I see a long ocean voyage!"

after that date are handled as retro-active payments so that a check can be released within a week.

If, for example, a Navyman is married on the 15th of the month, files his NavPers Form 668 and registers his Q allotment so it reaches the Finance Center by the 26th, his wife's check will be mailed on the last day of the month. If the authorization is received after the 26th, she will receive a check four or five days after the authorization is received. Without this special handling, the check would not be received until the following month.

To insure more prompt delivery of allotment checks, all those destined for foreign countries and overseas activities are now airmailed. This is a considerable item, since 18,000 checks are mailed each month to 62 foreign countries or overseas activities.

That's the story behind the speedup of your allotment checks. It's just one more phase in the Navy's continuing efforts to make your Navy career a satisfactory one.

Medical Department Course, Part Two Now Available

The Medical Department correspondence course, *Manual of the Medical Department, Part II* (NavPers 10709), is now available for enrollment by Regular and Reserve officer and enlisted personnel of the Medical Department. This course is designed to familiarize Medical Department personnel with procedures to be followed in performing professional and administrative functions.

It covers physical standards, physical examinations, and physical profiling, including necessary criteria concerning the use of forms and reports for recording physical examination findings.

The course consists of eight assignments, and is evaluated at 18 Naval Reserve retirement and promotion points.

Application for enrollment should be submitted on Form NavPers 992 (Rev. 10-54), (with appropriate change in the "To" line) forwarded via official channels to the Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Maryland.

HOW DID IT START

NAS Lakehurst

The Naval Air Station at Lakehurst, N. J., is the oldest and largest lighter-than-air base in the United States. Located 65 miles south of New York and 50 miles east of Philadelphia, it covers an area of more than 11 square miles.

The site on which the station now stands was originally an artillery and ammunition test range run by a contractor for the Imperial Russian Army and by the U. S. Navy under joint agreement. During World War I, it was used by the U. S. Army for similar purposes. In 1921, the Navy selected the site for construction of the USS *Shenandoah*, and Lakehurst facilities have in the past been used to house and service the famous rigid airships *Shenandoah*, *Los Angeles*, *Akron*, *Macon*, *Graf Zeppelin* and *Hindenburg*.

Hangar One is constructed of reinforced steel covered with asbestos shingles. It is 188 feet high, 264 feet wide and 807 feet long. It is so large that, it is claimed, condensation of water vapor in the air can cause it to rain inside the closed hangar.

Hangars Five and Six located to the west of Hangar One are the largest all-wood structures of their type in the world. Each hangar is 1000 feet long and 240 feet wide. Three football games could be played simultaneously in each of the hangars, with plenty of room for spectators. Nevertheless, housing airships in these hangars requires extremely careful ground-handling for there is very little room to spare.

In 1932 one of the Navy's most beautiful chapels was erected at Lakehurst by the American Legion of New Jersey in tribute to all men of the air, living or dead. Today, this Gothic style chapel is known as the "Cathedral of the Air."

NAS Lakehurst carries on lighter-than-air experimental and developmental work, provides base facilities and logistic support for three Fleet squadrons, a Naval Reserve airship squadron and an HU squadron. In



addition, the air station conducts all overhauls and major repairs to airships as well as several Navy and Marine helicopter and fixed wing aircraft. Until recently, it conducted basic training of all non-pilot personnel in the airship field.

Helicopter Squadron Two with headquarters at Lakehurst provides helicopters required to operate with the Atlantic Fleet. This squadron's shipboard rescue and utility operations have extended from the Arctic to the Antarctic regions and as far east as the Mediterranean and west to Korea.

Airship Squadron Three is an operational unit of the Atlantic Fleet. It participates in antisubmarine warfare phases of Fleet maneuvers and coastal patrols from Nova Scotia to the Caribbean.

The Lakehurst Naval Air Reserve Training Unit exercises control over three Airship Reserve Squadrons and one heavier-than-air squadron.

Airship Early Warning Squadron One (ZW-1), the first airship airborne early warning squadron, was commissioned at NAS Lakehurst in January. It is now operating as a member of the U. S. early warning team.

New Rules Set Up for Admission To Navy Movie Theaters

Procedures in administering the Navy-Marine Corps Motion Picture Plan at U. S. bases have been revised in order to do away with unneeded reports and special "movie passes."

Instead of the former "movie passes," the following will now be considered proper identification for admission: uniform of the day; standard Armed Forces Identifica-

tion Card; Military Dependent's Identification Card (DD Form 720); and copies of orders for Reservists on active duty for training.

Identification for dependents below the age of 16 years, and others not covered by the above credentials will be at the discretion of your commandant. Commandants of naval districts may, however, also retain use of passes in areas where local conditions make them necessary.

Details may be found in BuPers Inst. 1700.7 of 27 Jan 1956.

Enter Your Winners in the Inter-Service Photography Contest

The Sixth Inter-Service Photography Contest will be held in the Pentagon in Washington, D.C., about 1 Jun 1956. The Navy has been designated as host for this year's contest. The photo contest is for the beginning and amateur photographer and is designed to encourage participation in photographic activities.

All naval personnel and Coast Guardsmen on active duty for more than 90 days are eligible to enter photographs in the contest. Only photographs which have been taken by the individual contestant after 1 Jan. 1955 are eligible to be entered in competition. There's no limit to the number of photos a contestant may enter but a contestant can win only one prize in each class.

There are three classes of competition this year:

- **Class One** will be for single black and white enlargements. The size of the enlargements may vary from a minimum of 8 x 10 inches to a maximum of 16 x 20 inches.

- **Class Two** will be a series of three black and white glossy enlargements that must tell a picture story of one of the phases of the Navy Special Services Program. The photos should depict action, human interest and be suitable for use in publicity releases. The size of enlargements are the same as in Class One. The three photos in each series submitted must be the same size.

- **Class Three** will be for color transparencies. The size can vary from 35-mm. to 4 x 5 inches. For pro-

tection, the transparencies will be submitted in cardboard mounts and the face of the slide will be indicated by placing a red dot in the lower left hand corner of the mount.

All black and white entries which reach the level of the Department of the Navy Contest will automatically become the property of the Navy and WILL NOT be returned. Entries submitted in Classes One and Two should not include the negative.

Color transparencies will be returned to the contestants. However, the Navy Department will not be responsible for any loss or damage.

Entries deemed unsuitable for exhibition will not be considered. No official Navy photographs will be entered.

Subject matter should have appeal and meaning. Subjects may include, but are not limited to, landscapes, seascapes, still life, babies and children, animals, customs and people, documentary scenes of service life, architectural studies, interiors, flowers, abstractions and human interest subjects from daily life.

Entries will be judged primarily on impact, freshness of approach, story telling qualities, technical skill, print size and print quality.

Entries which are selected as winners in the District competitions will be entered in the Navy Department Contest. From this contest will be selected the photos and transparencies that will be entered in the Sixth Inter-Service Photography Contest.

The Commandant Third Naval District has been selected to be host for the Department of the Navy Contest. A qualified jury will be appointed by ComThree to select the winners. Entries in the Navy Department Contest must be received by the Third Naval District no later than 1 May 1956.

In the Navy Department Contest, awards will be given to the winners of first through seventh place in the black and white photographs. In Class Two, winners of first, second and third place will be given awards. In the color transparencies, awards will go to first, second and third place winners.

Honorable Mentions, which consist of Certificates of Accomplishment, will be awarded to seven con-

testants in Class One, two in Class Two and three in Class Three. In the Inter-Service Photo Contest, awards will be given to each of the twelve winners selected by three nationally recognized photographers.

Entries from all the services which are selected for the Grand Finals will be exhibited in the Pentagon, Washington, D.C., during the month of July 1956. A trophy for the most popular entry, as determined by public ballot, will be awarded at the conclusion of the Sixth Inter-Service Photography Exhibition.

Here is a run-down on the Navy regional eliminations and the areas they cover:

- **ComFour**—Activities within the First, Third, Fourth, Sixth, Eighth, and Ninth Naval Districts.

- **ComFive**—Activities within the Fifth, Tenth, and Fifteenth Naval Districts, Potomac River Naval Command, Severn River Naval Command; Fleet- and shore-based units of the Atlantic Fleet including Atlantic Fleet units operating under CinCNeIm.

- **ComEleven**—Activities within the Eleventh, Twelfth, Thirteenth, and Seventeenth Naval Districts; all Pacific Fleet units on the West Coast.

- **ComFourteen**—Activities within the fourteenth Naval District and activities ashore and afloat in the Hawaiian area and west of the Hawaiian Islands.

Complete details and rules for the contest are contained in BuPers Notice 1700 of 6 Feb 1956.

All-Navy Cartoon Contest—
W. P. Duensing, HM1, USN.

All-Navy Cartoon Contest—
W. P. Duensing, HM1, USN.



"Ah, avast there mates, you've embarked a new mate, coming on board for duty . . ."



"... No shoeshine . . . No shoeshine . . .
No shoeshine . . ."

SecNav Policy Set Forth on Voluntary Separation Of USN and USNR Officers

Current policy concerning the voluntary separation of Regular Navy and Naval Reserve officers (except officers of the Medical and Dental Corps) has been set forth by the Secretary of the Navy in SecNav Inst. 1920.3. The policy has been based on officer personnel requirements for the present and the foreseeable future and is set forth by SecNav under his authority to act for the President, since officers of the Navy serve at the President's pleasure and no terminal dates are established for their commissions.

The established criteria for voluntary separation are as follows:

Permanent USN Officers (men)—Permanent Regular Navy officers who submit their resignations may, except in unusual circumstances, expect favorable action on their request if they have fulfilled the service requirements listed below:

- Basic required service period of four years' active commissioned service, which may include time spent undergoing advanced training or graduate instruction.

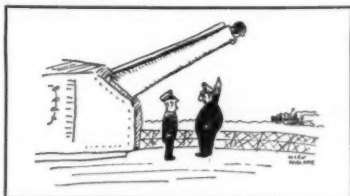
- Completion of additional service requirements incurred as a result of advanced training or graduate instruction. The duration of this additional service is established for each individual at the time such training or instruction is commenced and must be served after completion of such training.

- Where total active and inactive commissioned service is less than eight years, or less than six years in the case of officers commissioned after 9 Aug 1955, favorable action on a resignation will normally be contingent upon acceptance of a commission in the Naval Reserve.

USNR Officers (men)—Naval Reserve officers who have completed their period of obligated active duty and whose total active and inactive commissioned service is eight or more years (six or more years for officers commissioned after 9 Aug 1955), may submit their resignations and normally expect favorable action thereon.

Women Officers (USN and USNR)—The criteria for acceptance of resignations from women officers of the Regular Navy and the Naval

All-Navy Cartoon Contest—
Glen Walker



"I don't care what he did in civilian life... transfer that man by high-line!!"

Reserve are the same as those for male officers *except* that resignations will normally be accepted from married women officers upon completion of two or more years of active commissioned service, plus any additional service incurred as a result of specialized training. Approval of resignations in this category will not normally be contingent upon the acceptance of commissions in the Naval Reserve. In addition, the provisions of the SecNav Instruction do not affect provisions of Article C-10338(2), *BuPers Manual*.

Temporary Officers—Temporary officers and warrant officers whose

permanent grade is enlisted, may request reversion to their permanent enlisted status for the purpose of being discharged by reason of expiration of enlistment or of continuing on active duty in their enlisted ratings. Such officers may normally expect favorable consideration of their requests.

Final action on requests submitted will be governed by needs of the service. Therefore approval may be withheld until a qualified relief is available.

Correspondence Course on Aircraft Electrical Systems

A new officer correspondence course, *Aircraft Electrical Systems*, (NavPers 10757), is now available at the Naval Correspondence Course Center. This course consists of five assignments and is evaluated at 10 Naval Reserve points credit.

Application for enrollment should be made on Form NavPers 992 (Rev. Oct. 54), forwarded via official channels to the Naval Correspondence Course Center, Building RF, U. S. Naval Base, Brooklyn 1, N. Y.

WHAT'S IN A NAME

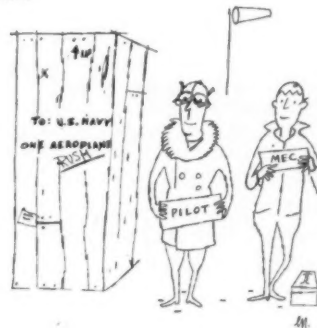
CNATRA

When the Navy bought three airplanes in 1911, a clause in the contract stated that the builder of each plane should train a pilot and mechanic for it. As the airplane rapidly developed into a tactical weapon, the Navy began to train its own pilots and ground crews.

Naval air, in April 1917, at the brink of World War I, mustered a total of 48 officers and 239 enlisted men. The picture changed in World War II, however, when the naval air force became the Fleet's umbrella.

To meet the vastly increased need for trained aviation personnel, the Secretary of the Navy in 1942 established the Air Operational, Air Technical, Air Primary and Air Intermediate Training Commands. Then in December 1943, the Naval Air Training Command was established to coordinate the activities of the specialized air training commands.

Referred to as CNATRA pronounced "Sinatra"), the Chief of Naval Air Training has command headquarters at NAS Pensacola, Fla. The training command's octopus-like liaison arms make it the largest continental naval command, with at least one



activity in every naval district. The Command currently lists about 25,000 personnel billets.

The four major air training commands under CNATRA's present setup are: Naval Air Basic Training, which also has headquarters at NAS Pensacola; Naval Air Advanced Training, with headquarters at NAS Corpus Christi, Tex.; Naval Air Technical Training, at NAS Memphis, Tenn.; and Naval Air Reserve Training, at Glenview, Ill.

Naval Gun Factory Builds Carriers

Shipbuilding has returned to the Naval Gun Factory, Washington, D. C., after an absence of almost a hundred years. The ships being turned out here today are a far cry, however, from the sloops-of-war which the early Yard turned out for an infant Navy.

Today's shipbuilding project is to turn out 71 *Forrestals*, the worlds mightiest flattop, before next June. However, the Gun Factory carriers will never be manned, will never defend our country against an aggressor.

The ships are models which will be used for display and identification training at naval installations throughout the country.

These *Forrestals* are exact replicas of the mighty original, cut down to 250th scale. Turned out of white pine, they are slightly over four feet long from bow to stern and 12 inches high from display case or water line to tip of radar mast.

The Gun Factory has repaired ship models in the past and has built one or two others. But the *Forrestals*, because of their smaller size and the exactness of scale required, have posed a considerable problem.

Some of the almost minute detail work on the superstructure — radar masts, antennas, bridge construction — are reproduced to scale from tiny pieces of brass. Much painstaking care and steady handwork are needed to form such items.

Zellars Crew Sees Epidemic; Gives Dollars To Polio Fund

Uss *Zellars* (DD 777) is back in the news again. As before, she's leading the pack. This time it was the March of Dimes campaign that benefitted from the teamwork and generosity of *Zellars'* crewmen.

Digging deep into their dungaree pockets, *Zellars'* crewmen came up with \$1570 for the recent March of Dimes campaign. This averaged out to a donation of slightly more than \$6.00 per man.

What might have inspired the crew's generosity was the fact that some of them had recently witnessed a polio epidemic that struck some 40 Navy men and 100 de-

pendents in Key West, Fla., area. The three-strand railing used on many parts of the ship is another problem, mainly because it can be only about 5/16 of an inch from top to bottom strand.

When the job was started, a search of hobby and model shops turned up extra-small model railroad rails which fill the bill up to a point. They are made with only two rails, however, so the third or middle rail must be soldered on, another not-so-small feat for steady hands.

Now that the bugs have been ironed out, the carriers are set up on an assembly line which will turn out six, then seven, and finally nine finished models a month. The first six were delivered early in November.

Like any other new production job, the carriers required special tooling. A special profiling machine was designed and built to shape the hulls to their proper contours, eliminating many hours of laborious hand work.

When completed, the models get a finish coat of Navy grey paint, then receive silk screen striping on the flight deck and superstructure.

As a final touch, the models are mounted on a mahogany-stained base which stands on removable metal legs. A plastic cover fits over the base as a protection and can be removed for instruction or other purposes. A metal shipping case, nicknamed the casket, completes the models' equipment.

pendents in Key West, Fla., area.

The original goal for the destroyer was set at \$1000, but this was soon surpassed. Adopting the slogan "A Good Ship is a Generous Ship," the crewmen oversubscribed their goal by more than 50 per cent. No donation was for less than \$5.00 and individual contributions ran as high as \$45.00.

Zellars was earlier in the headlines when she very bravely challenged the huge aircraft carrier *uss Valley Forge* (CVS 45) to a football game in Lisbon, Portugal. The game, although lost by *Zellars'* team, was a fabulous success with more than 45,000 Portuguese witnessing their first American football.

Lineal Requirements Unchanged For USNR Officers Requesting Transfer to the Regular Navy

Many Reserve officers, including those on inactive duty, have written this Bureau requesting readjustment of their lineal positions, so that they may qualify for transfer to the Regular Navy under the current Augmentation Program.

The Bureau points out, however, that the lineal positions set forth in BuPers Inst. 1120.12D for the Augmentation Program for officers in the grade of lieutenant in the stated classifications were established after careful thought and consideration. And Instruction 1120.12D does not provide for the lineal adjustment of any Reserve officer to permit consideration of his application for transfer to the Regular Navy.

The lineal requirements already established are considered adequate to fulfill the Navy's needs for the rank and specialty defined in the Instruction, as no waivers of the lineal restriction will be permitted at the present time.

The Bureau, in view of the above, considers it very necessary that applicants conform strictly to the standards set forth in the Instruction in determining their eligibility for transfer to the Regulars.

BuPers Announces Changes in Emergency Service Ratings

Several changes to the Enlisted Rating Structure's emergency service ratings have been approved by the Secretary of the Navy. Although announced in BuPers Notice 1223 of 30 Jan 1956, the ratings will not go into effect until further notice. Personnel affected by the upcoming ratings will continue to advance in the ratings they now hold, and will not be changed from one rating to another until specific instructions regarding such changes are promulgated.

The newly-established emergency service ratings are:

1) Under *Aviation Electronics Technician*: Aviation Electronics Technician N (Communications and Navigation Equipment); Aviation Electronics Technician R (Radar); and Aviation Electronics Technician S (ASW).

2) Under *Aviation Machinist's Mate*: Aviation Machinist's Mate R

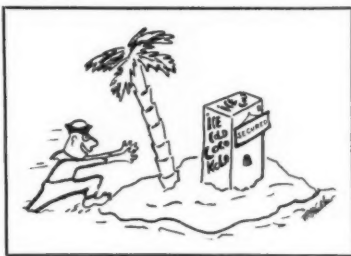
(Reciprocating Engine Mechanic); Aviation Machinist's Mate J (Turbojet Engine Mechanic).

The exclusive emergency service rating of Aircraft Carburetor Mechanic (ESA) is also established, while the following emergency service ratings are desestablished: 1) Boatswain's Mate B (CB Boatswain's Mate); 2) Aviation Machinist's Mate G (Carburetor Mechanic); 3) Aviation Machinist's Mate E (Engine Mechanic); and 4) Aviation Machinist's Mate F (Flight Engineer).

Deadline Nears for Rhodes Scholarship Applications, Officers, Midshipmen Eligible

Eligibility requirements and procedures for requesting Navy sponsorship in the upcoming Rhodes Scholarship competition have been set forth in BuPers Notice 1520 of 17 Jan 1956. Elections to the schol-

All-Navy Cartoon Contest—
H. G. Walker



arships will be held in all states in December 1956.

Successful applicants for Navy sponsorship may enter competition either in the state of residence or the state in which at least two years of college education were completed.

Those candidates who are elected to scholarships by the Rhodes committee may expect orders to duty at Oxford University in an active duty

status for the tenure of the scholarship. Scholars-elect will enter the university in October 1957.

The following personnel are eligible to request Navy sponsorship (if they meet eligibility requirements set forth by Rhodes trustees): 1) Men who are commissioned officers of the Regular Navy and Marine Corps now on active duty and who are graduates of the Naval Academy or an accredited civilian institution; 2) Naval Academy midshipmen who will receive their commissions in June 1956 or June 1957; 3) NROTC midshipmen who will receive their commissions in the Regular Navy or Marine Corps before 30 Sep 1956.

The deadline for applications (with necessary endorsements) is 1 May 1956; however, it is requested that an advance copy of the request be mailed as soon as possible to the Chief of Naval Personnel (Attn: Pers C1224).

Cities Go on Patrol

Patrol vessels, which previously were known only by hull numbers, will now be recognized by individual names, after cities of the United States.

The names assigned to 141 submarine chasers, escorts and rescue escorts are listed below. They were

chosen from cities with a population between 2500 and 10,000.

The change, which became effective in February is in line with the Navy's policy of assigning names instead of numbers to as many ships as possible.

Of the 141 patrol vessels named, 32 are in commission and the re-

mainder are in the inactive fleet.

Of the total, 101 are 173-foot submarine chasers (PC), 17 are 180-foot escorts (PCE), 8 are 180-foot rescue escorts (PCER), and 15 are 136 foot submarine chasers (PCS).

Here are the designations and hull numbers of patrol vessels with their new names:

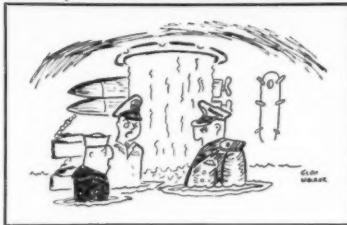
PC-461—Bluffton	PC-602—Alturas	PC-1138—Lapeer	PC-1225—Waverly	PCE-900—Groton
PC-465—Paragould	PC-603—Solway	PC-1140—Glenwood	PC-1228—Munising	PCE-902—Portage
PC-466—Carmi	PC-606—Andrews	PC-1141—Pierre	PC-1229—Wauseon	PCE-903—Batesburg
PC-470—Antigo	PC-617—Beeville	PC-1142—Hanford	PC-1230—Grinnell	PCE-904—Gettysburg
PC-483—Rolla	PC-618—Weatherford	PC-1145—Winnemucca	PC-1231—Tipton	PCE-877—Havre
PC-484—Cooperstown	PC-619—Dalhart	PC-1149—Susanville	PC-1237—Abingdon	PCE-886—Banning
PC-486—Jasper	PC-620—Bathany	PC-1169—Escondido	PC-1240—Culpeper	PCER-849—Somersworth
PC-487—Larchmont	PC-776—Pikeville	PC-1170—Kelso	PC-1242—Port Clinton	PCER-850—Fairview
PC-553—Malone	PC-777—Waynesburg	PC-1172—Olney	PC-1244—Martinez	PCER-851—Rockville
PC-560—Oberlin	PC-778—Gallipolis	PC-1173—Andalusia	PC-1246—Canandaigua	PCER-852—Brattleboro
PC-564—Chadron	PC-779—Mechanicsburg	PC-1174—Fredonia	PC-1251—Ukiah	PCER-853—Amherst
PC-565—Gilmer	PC-780—Maynard	PC-1175—Vandalia	PC-1252—Tarrytown	PCER-855—Rexburg
PC-566—Honesdale	PC-781—Metuchen	PC-1176—Minden	PC-1260—Durango	PCER-856—Whitehall
PC-567—Riverhead	PC-782—Glenolden	PC-1177—Guymon	PC-1263—Milledgeville	PCER-857—Marysville
PC-568—Altus	PC-785—Frostburg	PC-1178—Kewaunee	PC-1546—Grosse-Pointe	PCS-1376—Winder
PC-569—Petoskey	PC-808—Ripley	PC-1179—Morris	PC-1547—Corinth	PCS-1378—Provincetown
PC-571—Anoka	PC-817—Welch	PC-1180—Woodstock	PC-1569—Anacortes	PCS-1380—Rushville
PC-572—Tooele	PC-822—Asheboro	PC-1181—Wildwood	PCE-842—Marfa	PCS-1383—Attica
PC-579—Wapakoneta	PC-1077—Edenton	PC-1186—Ipswich	PCE-843—Skowhegan	PCS-1384—Eufaula
PC-580—Malvern	PC-1079—Ludington	PC-1191—Bel Air	PCE-845—Worland	PCS-1385—Holidaysburg
PC-581—Manville	PC-1081—Cadiz	PC-1193—Ridgway	PCE-846—Eunice	PCS-1386—Hampton
PC-582—Lenoir	PC-1087—Placerville	PC-1196—Mayfield	PCE-870—Dania	PCS-1387—Beaufort
PC-586—Patchogue	PC-1119—Greencastle	PC-1198—Westerly	PCE-874—Pascagoula	PCS-1392—Deming
PC-588—Houghton	PC-1120—Carlville	PC-1201—Kittery	PCE-880—Ely	PCS-1400—Coquille
PC-589—Metropolis	PC-1125—Cordele	PC-1209—Medina	PCE-892—Somerset	PCS-1401—McMinville
PC-592—Towanda	PC-1135—Canastota	PC-1212—Laurinburg	PCE-894—Farmington	PCS-1413—Elsmere
PC-597—Kerrville	PC-1136—Galena	PC-1213—Loudon	PCE-895—Crestview	PCS-1423—Prescott
PC-601—Arcata	PC-1137—Worthington	PC-1216—Elkins	PCE-899—Lamar	PCS-1431—Grafton
				PCS-1444—Conneaut

Service in Armed Forces Qualifies Certain Non-Citizens To Petition for Naturalization

Certain Filipinos and other aliens who were eligible for naturalization under Section 324 of the Nationality Act of 1940, but who were not naturalized before that Act was cancelled, may be naturalized under provisions of the Act if they file a petition while still in military service, or within six months after separation from military service.

The Nationality Act of 1940 authorized naturalization of non-citizens who had served honorably in the armed forces of the U. S. for a total of three years, without their meeting such requirements as lawful admission into the U. S. for permanent residence. This act was repealed, effective 24 Dec 1952, by a law which established quota controls and required that non-citizen military personnel must establish

All-Navy Cartoon Contest—Glen Walker



"...says he heard a knock, so he opened the hatch!"

"lawful admission" under the quota for their country.

However, a recent court decision held that the savings clause of the 1952 Act preserved the rights of those eligible for naturalization under the 1940 Act. Thus, if you are a non-citizen who served honorably in the armed forces for a total of three years or more before 24 Dec 1952, you may again petition for naturalization under the 1940 Act—without regard to the normal re-

quirement concerning lawful admission into the United States for permanent residence.

BuPers Inst. 5802.2 lists the naturalization procedure for those meeting the naturalization requirements of the Nationality Act of 1940.

Revised Correspondence Course For CDs Is Available

A revised Enlisted Correspondence Course is now available to all enlisted personnel.

Driver 2 (NavPers 91574-1) is applicable to the rating of CD, and is evaluated at 15 retirement points. This course may be retaken for repeat Naval Reserve retirement credit. In making application use NavPers Form 580.

All applications should be sent to the U. S. Naval Correspondence Course Center, Building RF, U. S. Naval Base, Brooklyn 1, N. Y., via your commanding officer.

Navy's Freelance "Missionaries" Make a Hit Overseas

American sailors are finding the opportunity to be missionaries and goodwill ambassadors around the world.

Sailors of the Sixth Fleet in particular have been recognized for their marked interest in missionary work. Increasing numbers participate in combined sailor and civilian worship services and assist naval chaplains during visits to native churches and missionaries.

While *uss Coral Sea* (CVA-43) was in the Mediterranean during its annual cruise, liberty-bound personnel made 13 guided tours of 48 foreign churches and missions in 11 ports of Portugal, Spain, Italy, Greece, Arabia and Turkey.

Through native interpreters, the *Coral Sea* men participated in 24 local church services. One of the highlights of these combined services was the simultaneous singing of favorite hymns harmonized in many different languages.

"Our men report they feel the deep fellowship of worship even though they cannot understand the words of the native singers," Chaplain Oliver F. L. Wiese, of *Coral Sea*, said.

Similar testimonies can be found

in the chaplain's offices of *uss Lake Champlain* (CVA-39), *Intrepid* (CVA-11), *Ticonderoga* (CVA-14), *Randolph* (CVA-15), and *Siboney* (CVE-112). Other carriers making less extended cruises report similar experiences.

In a recent cruise to Lisbon, Portugal, *uss Valley Forge* (CVS-45) offered to its Roman Catholic personnel the opportunity to visit the famous shrine of Fatima. Many also attended Mass at the historic Chapel of the Apparitions.

In Lisbon, the men were so impressed with a seminary and hospital maintained by a religious group that, after their visit, a sizeable gift was left to continue the work. Similar tours during previous cruises were made to the native churches of Halifax, Nova Scotia; and St. Thomas, Virgin Islands; by the crew of *Valley Forge*.

Not long ago, a group of *Coral Sea* sailors stood at the historic Areopagus in Athens, Greece. This was for most of them the first visit to the Old World center of culture. They stood on Mars Hill before a bronze plaque on which were some historic words—St. Paul's famous sermon to "Ye men of Athens" recorded in the

17th chapter of Acts. New Testaments came out of jumper pockets while the men read one of the best known sermons in all religious literature on the site where it was first preached.

"My attitude toward the individual missionaries has changed greatly," said Chaplain A. L. Murray, of *Randolph*. "I had always thought the best work was being done by the missionaries affiliated with a denomination, but these freelance missionaries are doing a marvelous job."

Some of these freelance missionaries are teaching in the native schools, others work for large American-affiliated corporations, and teach in the evenings.

It is frequent practice, as a U. S. Navy ship leaves a foreign port, for the crewmembers interested in a specific phase of the church's work to leave a donation to assist local Christian work.

The total good accomplished by such experiences is beyond words. Not only do visiting sailors come in contact with other cultures, they also begin to see more clearly the length and depth and height of the Christian experience around the world.

Beneficiary Can Now be Named for Arrears in Pay

A new law has been passed which gives you the right to designate a beneficiary or beneficiaries for any unpaid pay and allowances (arrears in pay) due you upon the date of your death. Under this new law, you may also designate the amount paid to each beneficiary.

The Department of the Navy will make settlement to the designated beneficiary or beneficiaries as you list them. However, if you name no beneficiary, the case will be processed through the General Accounting Office.

Designations or changes of beneficiaries by Navymen, including members retired or transferred to the Fleet Reserve on or after 1 Jan 1956, must be made on DD Form 93-1 (revision of DD Form 93). Navymen who were on the retired or retainer pay rolls on 31 Dec 1955 must designate their beneficiaries on NFC Form 1786A which is distributed by the Navy Finance Center.

It is vitally important that you fill out and file the DD Form 93-1 whenever you have a change in beneficiary. Public Law 147, 84th Congress, provides that any payment made under this Act shall be a bar to recovery by any other person of any amount so paid. This means that unless you have an up-to-date DD 93-1 on file, the arrears in pay due you might be paid to a person whom you no longer want listed as a beneficiary.

If you already have a DD Form 93 filed in your service record, designating your beneficiary for the six months' death gratuity, that will be considered as a designation of beneficiary for purposes of this Act.

All pay and allowances which are due you from the Department of the Navy will be paid to your survivors in the following order:

- To the beneficiary or beneficiaries named by you and filed, before your death, either in your service record at your duty station or your record in the Bureau of Naval Personnel.
- If you do not list a beneficiary, to your wife, or husband in the case of Waves and Nurses.
- If you list no beneficiary or have no surviving spouse, to your child or children.
- If none of the above, to your

WAY BACK WHEN

Navy Takes California

Before the days of rapid communication, ship captains frequently had little contact with the Navy Department, and little news of world conditions other than what could be gleaned in the ports visited and from other ships.

That was the situation in 1842 when Commodore Thomas Ap Catesby Jones seized California and held it for 36 hours—although peace existed between the U.S. and Mexico.

During the few years previous, the state of California was a state of confusion: Spain had ceded her rights to the Republic of Mexico; the Russians had sold their stake to John Sutter; the British were interested in the territory, and the U. S. also wanted the "Golden West." In mid-1842 the United States had a small force of three ships, *Dale*, *Cyane* and *United States*, operating within striking distance of the California coast; while the British had Admiral Thomas and a fleet patrolling the coastal waters, awaiting an opportune moment to strike. In September 1842, however, both forces were in the Peruvian harbor of Callao—when the English fleet sailed quite suddenly, and under sealed orders at that.

Almost within hours, Jones came across an item in a New Orleans newspaper asserting that Mexico had ceded California to Great Britain for \$7,000,000. Jones, assuming that a state of war would automatically exist between Mexico and the United States and that the British fleet was up to no good, cleared the harbor within 30 minutes, sending *Dale* to Panama with a report for Washington, while heading *Cyane* and *United States* for the California coast. En route, the commodore wrote a letter to the Secretary of the Navy, pointing out that he had received no communication since his sailing orders nine months previously, and that what he was about to do was confined "strictly to what I may suppose would be your views and orders, had you the means of communicating them to me."



Monterey, the Mexican capital of California, was captured on 20 Oct. 1842 without a single shot being fired. The Mexican flag was hauled down, U. S. colors raised, and terms of occupation arranged. All dealings with the Mexican departmental government were quite friendly.

On the following day, Commodore Jones went ashore to survey the situation in his conquered territory. In checking over the Mexican government's papers and port archives, he came upon a very disturbing dispatch: a document dated August 4th explicitly declared that no state of war existed and none was imminent.

Jones, having captured the capital without reason, regretfully made a decision, "No war, no capture!" With apologies and proper ceremonies he delivered the town back to Mexican officials — after an occupation which had lasted some 36 hours. Embarrassment was the mildest of his feelings.

As a result of his hasty action, the government relieved Commodore Jones of his command, but in recognition of his vigilance did so without censure.

Just four years later, however, the Pacific Squadron (then under Commodore Sloat) once again raised American colors over the territory, and in September 1850 California was proclaimed a state.

parents or the survivor of them.

- If there be none of the above, to the legal representative of your estate; or if there be none, to the person or persons determined to be entitled to such payments by the laws of your State of domicile.

Your beneficiary designation must be on file, at the time of your death, either in your service record at your duty station or in the Bureau, in order to be effective. In the case of Navymen on the retired or retainer

pay rolls, it means the latest written request on file at the Navy Finance Center, activity maintaining service record in the field, or the Navy Department.

According to the Comptroller General in General Regulation No. 124, the term "pay and allowances" includes such items as per diem, travel, transportation of dependents, transportation of household goods, savings deposits, etc., found due from the Department of the Navy.

What You Should Know About the Survivor's Annuity Program

IF YOU ARE nearing completion of 17 years' service, you are reminded that the time has come to take a good look at what provisions have been made for your dependents—otherwise you may realize too late that you haven't made adequate plans for their support after you're gone.

Sometime after you reach your 17th year of federal service, you will be given a chance to apply for the "survivor's annuity" set forth in the Uniformed Services Contingency Option Act (Public Law 239, 83rd Congress). This so-called "survivor's annuity" is not one of the traditional survivor's benefits to which your family is automatically entitled upon your death—you must apply for the annuity and must give up a part of your retired pay to defray cost of participation in the plan (the application form, NavPers 591, will be sent to you without any request on your part). This, however, is your best method of insuring that your surviving dependents will receive a monthly check after your death.

Here is how—and what—you can provide for your dependents under the annuity plan:

You may elect to receive reduced retired pay so as to provide an annuity equal to one-half, one-fourth, or one-eighth of the reduced amount of the retired pay, the annuity to be

payable on your death to your widow and/or children.

There are four options which you may elect to include in your annuity:

1. *Annuity for the widow*—payable to or on behalf of a widow or widower, to terminate upon his or her death or remarriage.

2. *Annuity for the child or children*—payable to or on behalf of the surviving child or children, the annuity to terminate when there ceases to be at least one surviving child, unmarried and under 18 years of age (except that if there is a child unmarried and over 18 years of age incapable of self-support because of being mentally defective or physically incapacitated and that condition existed prior to his reaching 18, the annuity will terminate either upon his marriage, death or recovery from the disability.)

3. *Annuity for the family*—payable to or on behalf of the widow and surviving children, the annuity to terminate upon the death or remarriage of the widow; if later, the first day of the month in which there are no surviving children who are under 18 years of age and unmarried, or as listed in the exception above for defective and incapacitated children.

4. *Annuity with provision to cover contingency of beneficiaries predeceasing the retired member or otherwise becoming ineligible*: This option

may be combined with 1, 2, or 3 above, and provides that no further deductions will be made in the member's retired pay commencing with the first day of the month following that in which there is no beneficiary who will be eligible to receive the annuity upon the member's death.

While it is true that participation in the annuity plan cuts down on your retired pay, it does so while you are still in a position to support your family, and *guarantees that your family will not lack support in case of your death.*

A quick look at the four major monetary benefits for survivors listed below will show you that your dependents are not likely to receive any long-range monthly income, once you leave active duty, from such sources as the Veterans Administration, the Social Security program, or the \$10,000 Servicemen's Indemnity (since the indemnity coverage ceases 120 days after you enter the Fleet Reserve).

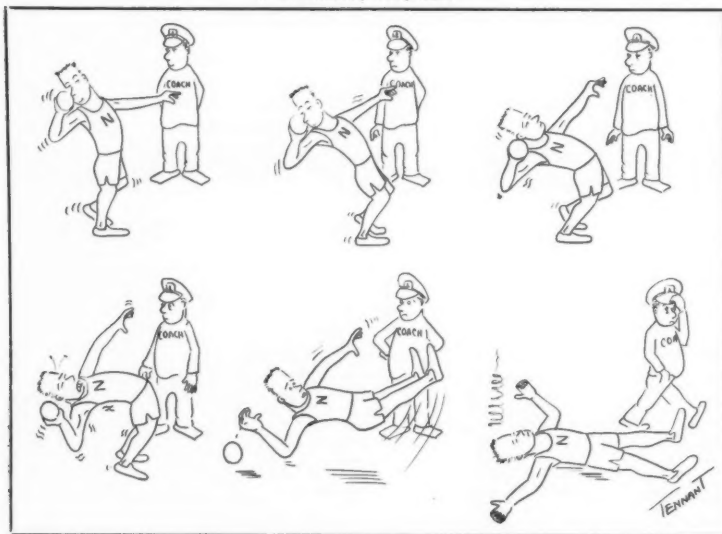
• *Six months' death gratuity*—This is a lump sum payment equal to six months' pay at the rate you were receiving on the day of your death—but it is payable only in the case of active duty; active duty for training and (under certain circumstances) inactive duty training; it is not payable to retired personnel on inactive duty or Reservists on inactive duty.

• *Indemnity and/or government insurance*—The free indemnity insures Navymen automatically, and at no cost to themselves, for \$10,000 against death while on active duty and within 120 days after separation from active service. So unless you die on active duty or within 120 days after entering the Fleet Reserve, you can't expect your survivors to receive any income from that source. If you have NSLI, USGLI or civilian insurance in effect at the time of death, your family will, of course, receive whatever income these provide.

• *VA Death compensation*—Under certain circumstances a surviving widow and/or dependent children may be entitled to monetary compensation if you had a service-connected disability (although your death may not have been service-connected).

• *Social Security benefits*—Navy

All-Navy Cartoon Contest—
T. H. Tennant, YN1, USN.



men who have been on active service some time between 16 Sep 1940 and 30 Jun 1955 may have built up sufficient Social Security credits to earn some benefits for their survivors; *but*, if you retire in good health this benefit disappears—unless you earn Social Security benefits (through civilian employment) not based on military service. It also disappears if you retire for physical disability and elect to have your retired pay computed on your years of service rather than on your percentage of disability.

Other traditional benefits, while extremely helpful in cutting expenses for your survivors, do not provide any steady income.

What it boils down to is this: Regardless of whether you have a substantial amount of insurance—NSLI, USGLI or civilian policies—or income from some private source—the Contingency Option Act offers the most economical method of assuring financial support for your dependents. It should be considered as the primary opportunity for providing regular monthly checks for the dependents of deceased retired personnel. Once again—this is only available if you sign up for the program. Full details of the Act may be found in BuPers Inst. 1750.1A.

Requests for Service Record Data by Former Navymen Go to New Armed Forces Center

Former Navymen wishing information contained in their service records must now address their inquiries to the Department of Defense Military Personnel Records Center. Discharged Naval Personnel Records Branch, 9700 Page Blvd., St. Louis 14, Mo. This unified armed forces activity has taken over the responsibilities of the Navy Records Management Center at Garden City, Long Island, N. Y., which has been disestablished.

The newly organized Department of Defense Military Personnel Records Center will maintain and service the personnel records of more than 35 million demobilized servicemen, including all Army and Air Force personnel separated since 1912 and all Navy and Marine Corps enlisted personnel separated since 1885.

Streamlined facilities at the new location will enable the DOD to furnish more efficient service to

Moses Family Is Navy True-Blue—All Seven of Them

The name "Moses" doesn't have much of a sea going connotation but there is a family named Moses down Coxton, Kentucky-way, which is doing its best to associate the name with the sea.

Seven children of the Moses family have served in the U.S. Navy to date with two younger children thinking about joining in the future.

Latest Moses to join the Navy is John Q. Moses, SN, USN, now serving at the Naval Auxiliary Air Station, Cabaniss Field, Corpus Christi, Tex.

A roll call of the Moses family shows the following run-down of naval service: Kenneth, the oldest, served as a GM2 during World War II; Leonard enlisted during World War II and went on to win

a commission and wings as a Navy pilot.

Tilman is now serving as an HM1 at the U.S. Navy Hospital in Bethesda, Md.; Janet served as a Wave during the Korean War; Dallas T. (for Texas) is an AO3; Carl is an FN serving in LST 1122, and John is the latest.

Still at home is Douglas, 11, and sister Betty, 16, Douglas is looking forward to joining the Navy while Betty wants to be a nurse and may well decide to become a Navy Nurse.

Sad to relate, the father of this Navy family has never worn the Navy blue, having served in the Army during World War I. Nevertheless it looks as though he has founded the beginnings of a Navy tradition, the Moses family.

former members of the armed forces and their families who seek information for substantiation of benefit claims. The new centralized unit will also speed up the handling of inquiries from commercial firms, the VA, other Federal, State, and local agencies, and various veterans' organizations.

The six-story structure has 1¼-million feet of floor space and is located on a 44-acre tract. It is among the 20 largest buildings in the world. The building is virtually a self-contained unit, having its own cafeteria and dispensary.

Personnel desiring information from their own files may obtain it by writing to the newly situated

Discharged Naval Personnel Records Branch. Generally, the information available is furnished without charge. By law, a nominal fee is charged when the service sought has been previously furnished. This charge is requested to defray a part of the cost of the research involved.

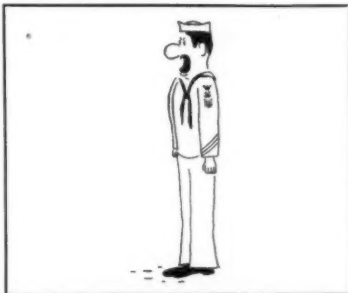
Back in Yorktown—Different Ship, Same Spirit

The haunting memory of a World War II battle was revived momentarily for Jim Powell, BM1, USN, when he reported aboard *uss Yorktown* (CVA 10), for Powell was a former crew member of the ill-fated *uss Yorktown* (CV 5) sunk at the Battle of Midway.

Powell recalls that the "old" *Yorktown* had been on a 104-day battle cruise when, on 7 June 1942, she was sunk as a result of enemy action at Midway. Thirty enemy bombers buzzed overhead and all but five were shot down. One bomb put the ship's boilers out of commission and three more direct hits all but rendered the ship helpless. Powell himself was bomb-blasted into the water, and half frozen before he was rescued by a destroyer.

Now after spending a few months on board "new" *Yorktown* Powell finds advances in Navy ships have left little to remind him of the old *Yorktown* except her spirit.

All-Navy Cartoon Contest—
W. R. Maul, CTSN, USN.



"Aw right, Boots! When I say FRMMDINN-
HABHOABANNDEE! I don't mean IMWIDL-
LEK KESARRASSDDHMMAA!"

DIRECTIVES IN BRIEF

This listing is intended to serve only for general information and as an index of current Alnavs and NavActs as well as current BuPers Instructions, BuPers Notices, and SecNav Instructions that apply to most ships and stations. Many instructions and notices are not of general interest and hence will not be carried in this section. Since BuPers Notices are arranged according to their group number and have no consecutive number within the group, their date of issue is included also for identification purposes. Personnel interested in specific directives should consult Alnavs, NavActs, Instructions and Notices for complete details before taking action.

Alnavs apply to all Navy and Marine Corps commands; NavActs apply to all Navy commands; BuPers Instructions and Notices apply to all ships and stations.

Alnavs

No. 3 - Requested commanding officers to nominate enlisted personnel qualified to participate in Operation Deepfreeze II. Deadline was 1 March.

No. 4 - Requested commanding officers to nominate qualified officers of certain rank and designator to participate in Operation Deepfreeze II. Deadline was 15 March.

Instructions

No. 1085.38 - Establishes a standard method for recording progress in completing practical factors for all active duty personnel in pay grades E-3 through E-6.

No. 1120.24 - Establishes policies and procedures for the submission of applications from qualified personnel for appointment in the Medical Service Corps USNR.

No. 1510.67 - Provides for local administration of correspondence courses for active duty EMs.

No. 1700.7 - Amends certain policies and procedures being followed in administering the Navy-Marine Corps motion picture plan.

No. 1910.8A - Sets forth the policy and procedures relating to separation of enlisted or inducted personnel for reasons of dependency or hardship.

No. 1910.13 - Incorporates into the Navy Directives System the report requirement showing the number of men discharged during recruit training period.

No. 1920.3 - Promulgates current policies governing the voluntary separation of officers other than members of the Medical and Dental Corps.

No. 5802.2 - Promulgates information concerning the eligibility for naturalization of certain Filipinos and other¹ aliens who, before 24 Dec 1952, completed three or more years' honorable military service.

Notices

No. 1500 (24 Jan) - Announced Change No. 1 to BuPers Inst. 1500.25A, which is concerned with the convening dates for classes at BuPers training activities and certain schools of other services for the calendar year 1956.

No. 1306 (25 Jan) - Announced Change No. 1 to BuPers Inst. 1306.8C, which is concerned with the assignment of Naval Reserve and Naval Fleet Reserve personnel to active duty.

The United States Navy Guardian of Our Country

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends. The United States Navy exists to make it so.

We Serve with Honor

Tradition, valor and victory are the Navy's heritage from the past. To these may be added dedication, discipline and vigilance as the watchwords of the present and future.

At home or on distant stations, we serve with pride, confident in the respect of our country, our shipmates, and our families.

Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege. We serve with honor.

The Future of the Navy

The Navy will always employ new weapons, new techniques and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war.

Mobility, surprise, dispersal and offensive power are the keynotes of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past. Never have our opportunities and our responsibilities been greater.

No. 1306 (25 Jan) - Announced Change No. 1 to BuPers Inst. 1306.21B, which is concerned with the procedures for reporting of male enlisted personnel for reassignment, upon completion of shore duty.

No. 1223 (30 Jan) - Announced approved changes to the enlisted rating structure. (Specific instructions requiring further action will be announced at a later date.)

No. 1001 (31 Jan) - Invited applications from certain active duty Naval Reserve officers for assignment to duty in the TAR program.

No. 1120 (31 Jan) - Announced change of period of obligated service required of applicants from eight to six years in accordance with Reserve Forces Act of 1955.

No. 5213 (31 Jan) - Advised all activities of the correct NavPers forms to be used in applying for enrollment in officer or enlisted correspondence courses.

No. 1700 (6 Feb) - Promulgated information and rules concerning the Sixth Inter-Service Photography Contest.

No. 1421 (7 Feb) - Announced the selection of enlisted men and women of the Regular Navy recommended for training leading to an appointment as ensign in the Regular Navy.

No. 1306 (8 Feb) - Announced changes to BuPers Inst. 1306.25B, which is concerned with options for assignment to duty of enlisted personnel on reenlistment.

No. 1550 (8 Feb) - Directed that the revised phonetic alphabet replace the present phonetic alphabet in the content of applicable training programs.

No. 7220 (16 Feb) - Stated that deadline to file application for mustering out payment has been extended to 16 Jul 1956.

No. 1120 (20 Feb) - Invited applications from permanently commissioned USN line officers not above the grade of lieutenant, for designation for Engineering, Aeronautical Engineering or Special Duty.

No. 1111 (21 Feb) - Announced the preliminary selection list of enlisted candidates for the NROTC.

No. 1440 (28 Feb) - Announced change in rating structure affecting Naval Reserve and Fleet Reserve personnel on active duty in the ratings of Aviation Machinist's Mate E, G, and F.

List of New Motion Pictures Available for Distribution To Ships and Overseas Bases

The latest list of 16-mm. feature motion pictures available from the Navy Motion Picture Service, Bldg. 311, Naval Base, Brooklyn 1, N. Y., is published here for the convenience of ships and overseas bases. The title of each movie is followed by the program number. Films in color are designated by (C). Distribution began in February.

Films distributed under the Fleet Motion Picture Plan are leased from the motion picture industry and are distributed free to ships and most overseas activities. Films leased under this plan are paid for by the BuPers Central Recreation Fund (derived from non-appropriated funds out of profits by Navy Exchanges and ship's stores) supplemented by annually appropriated funds. The Chief of Naval Personnel administers this program.

Wilson (459): Reissue—Drama; Alexander Knox, Charles Coburn.

The Square Jungle (460): Drama; Tony Curtis, Pat Crowley.

The Girl Rush (46-) (C): Musical; Rosalind Russell, Fernando Lamas.

Texas Lady (462): Adventure Drama; Claudette Colbert, Barry Sullivan.

Land of the Pharaohs (463): Historical Adventure; Jack Hawkins, Joan Collins.

The Second Greatest Sex (464) (C): Musical; Jeanne Crain, George Nader.

Sudden Danger (465): Drama; Bill Elliot, Beverly Garland.

Tennessee's Partner (466) (C): Adventure Drama; John Payne, Ronald Reagan.

The Kentuckian (467) (C): Pioneer Adventure; Burt Lancaster, Diana Lynn.

There's Always Tomorrow (468):

Drama; Barbara Stanwyck, Fred MacMurray.

You're Never Too Young (469) (C): Comedy; Dean Martin, Jerry Lewis.

Two Guy Lady (470): Western; Peggie Castle, William Tallman.

Storm Fear (471): Drama; Cornel Wilde, Jean Wallace.

Shack Out on 101 (472): Melodrama; Terry Moore, Frank Lovejoy.

It's Always Fair Weather (473): Musical; Gene Kelly, Cyd Charisse.

Summertime (474) (C): Drama; Katharine Hepburn, Rossano Brazzi.

The Treasure of Pancho Villa (475) (C): Adventure Drama; Rory Calhoun, Shelley Winters.

Meet Me in St. Louis (476): Reissue - Musical; Judy Garland, Margaret O'Brien.

Inside Detroit (477): Drama; Pat O'Brien, Dennis O'Keefe.

The Warriors (478) (C): Adventure Drama; Errol Flynn, Joanne Dru.

Membership in Naval Historical Foundation open to all Navymen

Membership in the Naval Historical Foundation is now open to all naval personnel. The Foundation is a private, non-profit, self-supporting, non-governmental organization dedicated to the preservation of the nation's heritage of maritime history and tradition.

The Foundation attempts to clarify the significance of sea power, including all its merchant and naval components, for the general public. One of the main functions of the Foundation is the operation of the Truxtun-Decatur Naval Museum in Washington, D.C.

The organization collects and preserves historical materials, including pictures, relics, manuscripts and books. It also reproduces and distributes naval historical material.

The Naval Historical Foundation receives its financial support mainly from a dues-paying membership. These resources are supplemented by income from trust funds and from irregular contributions by public-spirited individuals and groups.

Additional information concerning membership in the Foundation may be obtained by writing to Naval Historical Foundation, c/o Navy Department, Washington 25, D. C.

HERE'S YOUR NAVY

A new facility for testing and evaluating aircraft carrier launching and recovery systems is planned for NAS, Lakehurst, N. J. Construction, which was authorized in the Navy's fiscal '56 budget, is expected to take about two years.

The limited facilities now used by



the Navy at Mustin Field, Philadelphia, Pa., have become inadequate because of the restricted space available, their location within a congested air traffic zone and a densely populated area, and the extremely high performance equipment required for such testing.

The steam catapults used to launch modern Navy jet aircraft, for example, create sufficient power to



throw an average-weight automobile over a mile straight up.

The facility will be under the military command and coordination control of Commander, Naval Air Development and Material Center, Johnsville, Pennsylvania, and under the management control of the Bureau of Aeronautics. NAS Lakehurst will provide logistic support similar to that provided Fleet units.

The facility will be used to test



catapult and arresting gear equipment which is under development, and by the Bureau of Aeronautics to evaluate developed equipment. Conditions will closely simulate those aboard an aircraft carrier, with the latest high performance jet aircraft being used. Equipment, when proven, will be installed on the Navy's aircraft carriers.

QUIZ AWEIGH ANSWERS QUIZ AWEIGH is on page 45.

1. (c) Football field.
2. (a) 50 seconds.
3. (b) Escape from a submerged submarine.
4. (c) 300 feet.
5. (c) 3000 tons.
6. (a) 17 Jan 1955.

BOOKS

PLENTY OF SALT FLAVORS THIS MONTH'S SELECTION

THE FASCINATION of the sea never fails and, fortunately for Navy-men, the fascination of writing about the sea is equally strong. This month's choice, selected by the Bureau of Naval Personnel library staff, contains a generous range of fact and fiction. Here are some of the more noteworthy.

Tenth in the series which comprises the official naval history of the war, *The Atlantic Battle Won*, by Samuel Eliot Morison picks up where the first volume, *The Battle of the Atlantic*, left the tale untold. Primarily this is the submarine war, from September 1939 to April 1945, with a brief summary of the final period after the concentrated upward curve of disaster had turned in favor of the Allies.

Morison tells how the Atlantic sea lanes provided a central vital link in the chain that led to victory, and demonstrated the best example of strong sea and air power in co-operation. But this was reached after deadlocks in authority, after overcoming weakness of defensive opera-

tion, and lacks in special training.

Eventually the network of conveying extended to all water, the Atlantic, the Northern route, the Indian Ocean, the Mediterranean. The Allies won by sheer weight of resources and numbers, by intelligent employment of scientists, never better demonstrated than in the developments of anti-submarine warfare through radar and similar devices.

As in the earlier books, Morison succeeds in combining basic factual and statistical data with magnificent episodic story telling. He tells how the escort carrier group, the work of the surface hunters, the contribution of the army air, the new weapons and gadgets, all combined to defeat the underwater threat. Sound history and good reading.

Another book which tells a similar story as seen from the other side is *U-Boats at War*, by Harald Busch. It's primarily a story of individuals and individual incidents which have always given this particular phase of warfare its special, solitary heroism. Along with some notations on the cramped life on board a U-boat, corkscrewing and pitching through dangerous waters, there is information on the offensive and defensive objectives, on patrols, casualties, commanders, the development of new types of boats and the new countermeasures they faced.

The library staff has two candidates for the how-to-do-it department. One concerns social behavior in the Navy; the other, how to make the most of the weather.

The Answer Book on Naval Social Customs, is by two Navy wives, Ester Wier and Dorothy Coffin Hickey. It stems from an appreciation of the many problems which arise from a lack of knowledge of established naval social customs. Both are convinced that a return to rigid formality is no more desirable than the current laxness, and that somewhere between the two lies the key to social relations which can provide assurance and satisfaction to Navymen and their wives.

A question and answer book, it is comprehensive in its coverage of all types of social events in which the Navy wife is likely to attend. A

useful glossary of naval terms is included as well as that vital subject—illustrations of naval insignia.

A Mariner's Meteorology, by CAPT Charles G. Halpine, USN, (Ret.) and LCDR H. Hagen Taylor, USN, presents modern meteorology in such clear and simple text and pictures that everyone who depends on the water for pleasure or his livelihood can learn this useful science.

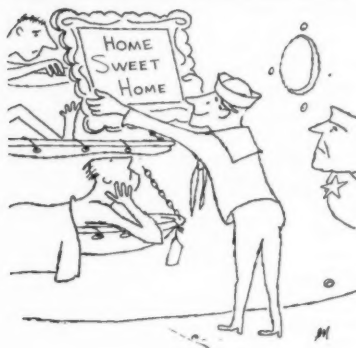
Written from the mariner's point of view, it is full of practical information. There are no advanced mathematics or higher physics to confuse the reader who needs to understand and identify weather.

A working manual on weather reports, maps, codes and forecasting, this is the official book used to teach meteorology to future officers at the U. S. Naval Academy. Facsimiles are shown of the latest Weather Bureau forms, with detailed examples of their use. Equal treatment is given to weather maps and the standard international codes used by all ships for sending and receiving weather information.

In the fiction field, *Boon Island*, by Kenneth Roberts also concerns the sea. The author has told a superb story of incredible hardship, a miracle of survival which is limited to a cast of 14 men marooned in midwinter on a bit of jagged rock. Shelter, food and drink were equally unobtainable. Based upon an actual event, the story is built up against the sustained fear of a crisis that is never fully realized, but continually threatened in the villainy of the first mate and his two co-plotters.

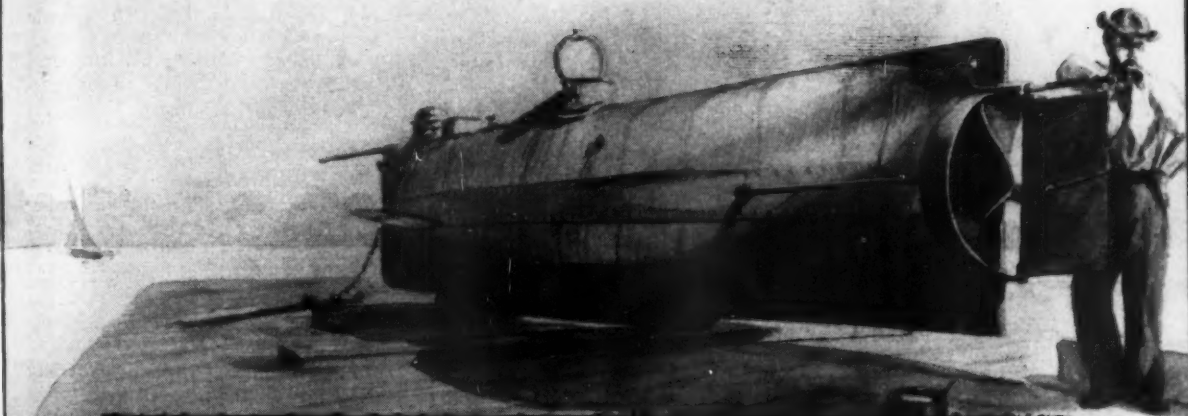
Another tale of man against circumstances is *The Horse Soldiers*, by Harold Sinclair. It's based on a little-known historical event of the Civil War, the so-called Grierson Raid, in which a Union brigade went through the heart of Confederate Mississippi. The central figure is Col. Marlowe, whose assignment is to cut the supply line to Vicksburg and then get himself out as best he can. It seemed an impossible task to everyone—to Marlowe, to his superiors, to the officers under him, and to the men. They lived 17 days in the saddle with food rations for five days, "living" off the land in an area already stripped to bare essentials. It was impossible, of course, but how it was done is the heart of an outstanding story.

SONGS OF THE SEA



His Ship a Home

The sailor's been to Hong Kong
And kicked the gong around.
He's sailed the whole world over
And one thing he has found:
No matter where he travels
Over ocean wave and foam —
His ship is still the best place
'Cause his ship is still his home.



CONFEDERATE SUBMARINES AND PT BOATS

When you think of submarines, you usually think of the new Navy. To the average person the history of submarines and submarine warfare begins in the twentieth century, but the story of the undersea boats goes back much further into the past. The first ideas and designs for submarines date back many centuries and there was one submarine, invented by a far-seeing American named Bushnell, that was actually used in the Revolutionary war (see ALL HANDS, November 1951, page 59).

This is an account of the little known story of the Confederate submarines and "Davids" (the latter were forerunners of the modern PT boat), and the role they played in the War between the States. Besieged with disasters in their development, these craft, nevertheless, were able to account for the neutralization of one Federal warship, *New Ironsides*, and the sinking of another, *Housatonic*, the first and only ship in history sunk by a submarine until World War I. (The submarine, however, was operating in an "awash position" when she made her kill.) These two incidents serve to remind us of the remarkable resourcefulness of the Confederate Navy which, under severe handicaps, pioneered in new techniques and weapons of war. But the value of these early craft was not so much in their military effectiveness as in the psychological impact they had on both the South and the North.

This account, written by Lieutenant (junior grade) Albert L. Kelln, USN, is reprinted from the *Virginia Magazine of History and Biography*.

THROUGHOUT HISTORY man has fought against man, state against state, nation against nation. The monetary value of the lives lost in these battle cannot be measured, for life is infinitely precious. However, from each battle clear evidence of man's ingenuity has come. The oppressed or outnumbered are always searching for some means by which to balance the scales of power, and the

mighty are always aware that inert confidence can lead to ruin.

The Confederates after secession found themselves with no appreciable navy, little protection for their harbors, and few natural or industrial resources with which to build a navy or conduct sea warfare.

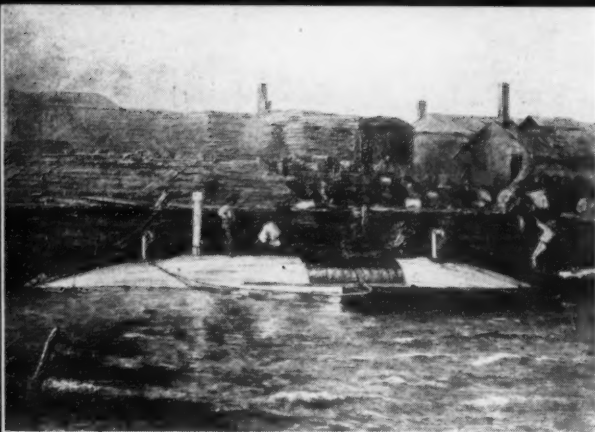
The South was in a very desperate situation by the middle of 1863, having completely lost control of the Mississippi River after the defeat at Vicksburg. Its sea-coast was blockaded by an ever-growing force of Northern ships. Over-powered, the Confederate Navy directed its attention to developing a submarine to meet the superior numbers of the enemy.

THE FIRST SUCH BOAT built by the South to achieve a victory was not in the true sense of the word a submarine! it was instead a gunboat cut down to the water line and covered on top with iron plating. The exposed parts offered a very small target. The torpedo was mounted on a spar extending forward from the bow and was filled with rifle powder. The stack was hinged and could be lowered at will. Its top speed was five knots. The builders, comparing the size of their boat to a ship of the line, were reminded of the story of David and Goliath and with this in mind christened their first boat the *David*.

Lieutenant William T. Glassell volunteered to command the craft and chose as his first objective the USS *New Ironsides*, which was lying off Morris Island in Charleston harbor. Glassell received orders on September 22, 1863, to assume command of the torpedo steamer and, when ready, to proceed against the enemy fleet.

On October 5 with a crew composed of James H.

From "Confederate Submarines" by Lieutenant (junior grade) Albert L. Kelln, USN, published in the *Virginia Magazine of History and Biography* and copyrighted by the Virginia Historical Society. Reprinted with permission of the copyright owners.



CONFEDERATE torpedo boat *David*, a 'semi-submarine,' attacked Federal ship 'Goliath' in Charleston blockade.

Tomb, acting first engineer, Walker Cannon, pilot, and James Sullivan, second fireman, Lieutenant Glassell left Charleston and proceeded down the main ship channel, passing through the entire fleet of enemy vessels. At eight-thirty in the evening he was abreast the Federal frigate, *Ironsides*. Desiring to take advantage of the flood tide after attacking the frigate, he stood off for about thirty minutes until all conditions were favorable and then proceeded with the attack.

As the *David* closed on the *Ironsides*, she was hailed fifty yards away by Acting Ensign Charles W. Howard, the officer of the deck. Upon receiving no answer he gave the order to fire into the *David*. Lieutenant Glassell answered the hail with a blast from a double-barreled shotgun and fatally wounded Ensign Howard.

In less than two minutes, the spar torpedo extending forward from the *David's* bow exploded, sending columns of water upon the spar deck and into the engine room. The actions of the crew of the *Ironsides* were uncontrollable, and many jumped off the undamaged side, while others began to lower boats into the water. The only injuries sustained by the crew from the explosion were a broken leg by one member and a severe contusion by another.

Captain Stephen C. Rowan, the commander of the *Ironsides*, was able to persuade the men to return to the ship only after reassuring them that his superficial investigation showed the vessel to be undamaged. The confusion and noise had prevented organized fire being aimed at the small boat which had created all the disturbance. Two cutters were dispatched to search for the attacking craft, but they returned without success.

MEANWHILE, ON BOARD the *David* the confusion was almost as great. The torpedo which struck the *Ironsides* was six and a half feet under the surface of the water, and even though the *David's* engines were reversed for backing just prior to the explosion, columns of water thrown up in the air fell into the boat and led the crew to believe that the fires were out and the vessel was about to be swamped. Sporadic small-arms fire fell on the *David* as she hung under the quarter of the *Ironsides*. Believing all was lost, the crew of the *David* jumped overboard. Lieutenant Glassell and his fireman, Sullivan, swam off into the night, taking with them the only two life preservers.

Engineer Tomb, while in the water, called out their surrender, but the firing did not cease so he returned to

the *David* and found there the pilot, Cannon, who had remained aboard. The fires were rebuilt, and after a short delay the vessel, with Cannon at the wheel, again passed through the enemy fleet and returned to Charleston. Lieutenant Glassell hailed a Northern coal schooner and was taken aboard as a prisoner. He was later questioned by Rear Admiral John A. Dahlgren aboard the *Philadelphia*.

Captain Rowan, after removing the coal from the bunkers in the *Ironsides*, discovered the damage caused by the torpedo was much more serious than he had at first reported. After remaining on station for several weeks, he requested that the ship be returned home for repairs. Stanchions and fore and aft pieces were jarred out of their iron sockets, which caused the decks to sag as much as three-quarters of an inch for thirty feet along the gun deck. Many small leaks developed from the shock of the explosion. Accordingly, on June 8, 1864, the *Ironsides* was ordered to return to Philadelphia as soon as she could be prepared for sea. The Confederates had noticed that after the attack the *Ironsides* was not participating in the usual barrages on Charleston and felt they had won a small victory. It was supposed that during the interval between the attack by the *David* and the *Ironsides'* removal from the blockading fleet she had not fired a shot.

ADMIRAL DAHLGREN, when reporting to Secretary of the Navy Gideon Welles, stated that if a charge of sixty pounds of powder was used in the spar torpedo, he could not see why six-hundred-pound charges could not be used in the future. He requested that the Northern Navy build similar ships and included in his report detailed plans describing the vessel he desired. He also wrote: "The secrecy, rapidity of movement, control of direction, and precise explosion indicate, I think, the introduction of the torpedo element as a means of certain warfare. It can be ignored no longer."

Precautions devised to frustrate future attacks were negligible, until reliable information from deserters on January 7, 1864, revealed that the South then had two torpedo boats ready for service, one being the *David*, which had attacked the *Ironsides*. The Northern officers did not receive the news of the *David's* successful return with much glee. The ironclads were then moved and anchored so they would be clear of each other's line of fire. They were also placed in shallow water as far as the blockading stations would permit. Fenders were rigged and netting, weighted by shot, was secured to their ends. Small boats were kept in the water as patrols and special shot was loaded in the howitzers. Other intelligence reports received by Admiral Dahlgren contained information about the number of new *David's* being built by the Confederates. The largest number ever seen in the water at one time was three, but a total of twenty-five was reported to be on the ways in the vicinity of Charleston.

ONE SUBMERSIBLE, called the *American Diver* by a deserter, was described as being smaller but able to submerge completely. It raised the fears of the Northern officers to such a height that additional precautions were ordered throughout the blockading squadron.

The craft referred to as the *American Diver* actually was the third and last in a series of boats built from the original plans of Captain James McClintock, CSA. The first craft, the *Pioneer*, was built at New Orleans in the spring of 1862. Financial assistance was given by Captain H. L. Hunley and Mr. Baxter Watson. The material

needed for building the new boat was very scarce. Eventually a quantity of old iron plates was found and used in the construction. The vessel was driven manually by a screw propeller. Two men formed the crew, a pilot and one man to crank the propeller. McClintock equipped the boat with horizontal fins for diving and remaining below the surface. The torpedo designed for the submarine was to be attached on the keel of the enemy from the submerged vessel, and left to be exploded by a clock-work mechanism.

The newly designed submarine was rather difficult to control, but McClintock did destroy several old rafts and a schooner before he was compelled to scuttle the little craft. He felt it would be better to destroy all evidence of his work rather than let it fall into the hands of David G. Farragut's advancing fleet. Actually the vessel was discovered by the North, and detailed plans of it were sent to Washington.

McClintock, Hunley, and Watson escaped from New Orleans and went to Mobile, Alabama. There they held a series of conferences with Major General Dabney H. Maury, and he authorized them to begin the construction of another submarine. It is interesting to note that McClintock stated to Northern officials after the war that the design of the submarine and the idea for it was completely his own. He declared that he knew nothing of the work of David Bushnell or Robert Fulton.

The second submarine was built at Mobile in the shops of Park and Lyons. Lieutenant W. A. Alexander, an engineering officer of the 21st Alabama Regiment, gave much technical assistance in building the vessel. Like the original submarine, she was constructed from old boiler plates that had been discarded as unusable.

The career of the second submarine was as short-lived as the first. After being launched she completed several practice dives in the Mobile River, but shortly afterward she foundered in Mobile Bay. She was attempting her first attack on the Federal fleet when a squall blew up, and the little vessel filled up with water through an open hatch. No lives were lost in this sinking, but the boat was never recovered from the bay.

McClintock and Watson decided to resign from the enterprise when the Confederate government refused to render financial assistance for the construction of a third submarine. Hunley personally financed the third submarine, and Lieutenant Alexander supervised the construction. It is well to point out that neither McClintock nor Watson participated in the actual construction of the third boat, and that Hunley was not its inventor as some historians have written. Rather McClintock may have given advice to Alexander during the building, while Hunley merely retained his position as financier.

The materials for construction consisted of an old boiler twenty-five feet in length and four feet in diameter.

The boiler was first cut longitudinally in half, and a foot strip of iron plating was riveted between the halves. Bulkheads extending nearly to the top were placed at both ends. The end compartments were shaped like rounded wedges and constituted the ballast tanks for controlling the buoyancy of the ship. The tanks were flooded by a valve in the center section of the submarine. At the bottom of each tank, pipes were connected to hand pumps, and the tanks could be emptied when the overboard valves were opened.

Attached to the bottom of the boat and constituting a keel were several flat iron castings, which could be released from within the center section. Their release would give the additional buoyancy necessary in case of emergency. In this manner she could rise to the surface without pumping water from the ballast tanks by hand.

The measurements of the finished vessel were about thirty-five feet in length, four feet in breadth at the midships section, and five feet in depth. Two conning towers were placed on the vessel extending upward about eight inches in height. Small ports of thick glass were built in each tower for observation. The hatches consisted of hinged doors seated on rubber gaskets and bolted from the inside.

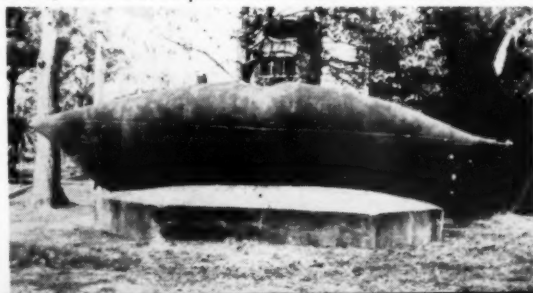
Means for replenishing the air while submerged or surfaced consisted of a hinged pipe which could be raised, and opened by a valve to allow fresh air to enter. The device, however, proved to be impractical and, whenever the pilot wished to replenish the air, it was necessary to surface and open the hatches. The usual way of submerging was to flood the ballast tanks until the craft lost buoyancy. Then the pilot could incline the planes and by starting ahead on the screw he could dive to and hold the desired level. To surface the overboard valves were opened and the tanks were pumped out until their buoyancy returned the boat to the surface.

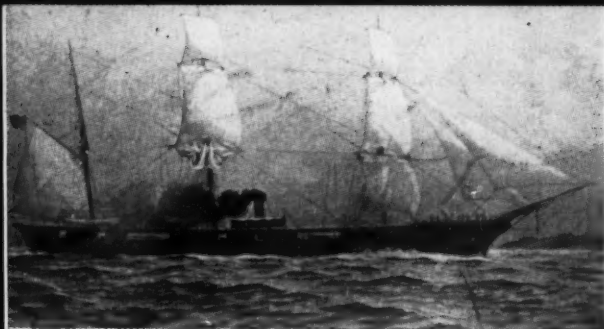
Counterbalanced diving planes about five feet in length were placed forward on the ship and were controlled by a lever in the front conning tower. The rudder was also controlled from the forward conning station, the pilot having merely to turn a wheel about shoulder height. The top speed of the vessel was approximately four knots so that it was very slow on answering the helm.

The ship received its motive power from a crankshaft which traversed the length of the boat and was attached to a twin-bladed propeller. The eight men who worked the crankshaft sat alternately facing each other on small brackets attached to the walls. The depth gauge was a U-shaped glass tube filled with mercury, one end of which was open to the outside of the boat. The gauge and front conning station were illuminated by a small candle.

The boat was originally designed to tow a copper cylinder containing a ninety-pound charge of explosives

RUSTED HULK of Confederate sub *Pioneer* shows riveted boiler plate construction. Conning tower was amidships. Powered by crew turning crankshaft, sub was capable of about four knots. Stern screw blades are missing.





TORPEDO blasted stern from *USS Housatonic*. *Hunley* has been credited as the first submarine to sink a warship.

from a two-hundred-foot towline. Upon sighting the enemy, the submarine would dive under the target and draw the torpedo against the ship where it would explode on contact. This proved impractical in shallow water, especially when the current was such as to bring the torpedo down upon the towing vessel.

The submarine was first tried out in the Mobile River and proved satisfactory as far as workmanship and construction were concerned. [On one try] she unexplainably failed to surface after one dive and took nine men to a watery grave, [but] she was later raised and prepared for action in Mobile Bay.

BEFORE SHE COULD be placed into action, General Maury decided that Charleston had greater need for the vessel because of the appearance of the powerful blockading fleet, including the *New Ironsides*, commanded by Admiral Dahlgren. He detached the boat from his command and transferred it to General Pierre G. T. Beauregard, who was in charge of the defenses of Charleston.

The *Hunley*, as she was now called, was loaded aboard two railroad cars and covered with tarpaulins. She arrived in Charleston on August 15, 1863, one week after rewards for the destruction of the Northern warships had been announced. The firm of John Fraser and Company announced that they would pay a sum of \$100,000 for the destruction of the *Ironsides* or *Wabash* and \$30,000 for every monitor sunk.

Lieutenant John Payne, originally aboard the *USS Chebecora*, volunteered along with eight other men to man and operate the *Hunley*. The lust for reward money was indeed very great. The crew established as its objective the *Ironsides*, the newest Federal frigate. Her thick armor plating backed up by one and a half feet of solid oak was impregnable. The fire she delivered was fast and accurate, and in General Beauregard's opinion she was the most dreaded ship of the blockade.

As the *Hunley* was now outfitted with a qualified and experienced crew, Payne felt the time was ripe to attack. They started on the first dark night to accomplish their objective, but as they left the wharf, the bow wave of a passing steamer carried water into the open conning tower and swamped the little craft. Payne was standing in the open conning tower and was the only man to escape from the boat.

Undoubtedly Payne felt experience was a good teacher, for he had the boat raised and obtained a new crew. As soon as the crew gained the experience necessary to successfully handle the *Hunley*, Payne started again for the *Ironsides*. Fate intervened again, and the submarine capsized off Fort Sumter. Payne again escaped the watery death that most of his crew experienced, but never again ventured to set foot in a submarine.

THE BOAT WAS RAISED again by Hunley and Parks, of Lyon and Parks, the shop in Mobile where the *Hunley* was built. They obtained a volunteer crew from Mobile and quickly set about learning how to handle the craft. The men became very adept at controlling the boat in the space of a few weeks. However, carelessness crept over them, and once again the submarine failed to emerge from the depths. The accident occurred in sight of a wharf, where several men were watching the ill-fated cruise. The *Hunley* was attempting to dive and pass beneath the station receiving ship. As soon as she disappeared under the water's surface, air bubbles were seen rising to the top. The accident occurred in nine fathoms of water.

Three days later divers found the submarine nosed in the mud at a thirty degree angle, stern high. The hatches opened easily and must have been unbolted from the inside. The valve for the forward ballast tank was found open and the handle missing. The after tank was empty, containing only entrapped air. The unfortunate chain of events probably started when Hunley gave the order to dive and opened his forward valve completely. The order never reached the after conning tower, and consequently the aft ballast tank was not flooded. The boat took on a nose down attitude; and as Hunley rushed to secure the forward valve in the darkness, he knocked the handle off, and it fell into the bilge. It was mentioned earlier that the ballast tanks were not completely shut off from the central section of the submarine. The water, after filling up the ballast tank, ran over into the center section and likewise filled it up. The air that was present was forced into the after ballast tank. The accident occurred on October 15, 1863, just nine days after the successful attack of the *David* upon the *Ironsides*. Lieutenant George E. Dixon, CSA and Lieutenant Alexander requested permission from General Beauregard to operate the *Hunley* as soon as she was salvaged. Both of the gentlemen had had experience around the submarine, Alexander actually supervising its construction. The general, after much hesitation, granted his permission but in so doing broke his word which he gave after the last accident, that the ship was never to go out again.

The Federal blockade commanders took every precaution after the *David* incident, and many defensive measures were instituted. The lookouts were doubled, anchor chains were made ready for slipping, heavy rope nets were rigged from suspended booms, small boats patrolled on dark and calm nights, special ordnance was installed, and steam was carried at all times so there would be no delay in getting under way.

Dixon and Alexander continually drilled their submarine crew in the passing months until they were completely prepared for an attack. Since all of the Northern ships in the inner harbor had taken protective measures and were stationed in shallow water, Dixon decided it would be necessary to attack one of the ships in the outer harbor. He therefore decided to use a different type of torpedo that would be more effective.

The *David*, after its heroic return, was often used to tow the *Hunley* from place to place. On one such trip the towed torpedo drifted into such a position that it nearly blew both ships out of the water. This was another reason for adopting a new type of torpedo.

The new torpedo consisted of a steel head backed up by ninety pounds of rifle powder. It was carried on the end of a ten-foot spar extending forward from the bow.

The steel head was to be driven into the wooden-sided vessel by impact and held there by saw-toothed corrugations. The exploder was attached to 50 yards of line. When the submarine had backed off this safe distance from the enemy, the rope would tighten and set off the detonator.

Dixon set as his objective the USS *Wabash* and left for it, each evening of favorable weather for several months with the ebb tide. He was always forced to return with the coming of daylight or the flood tide. The *Wabash* was withdrawn from the blockade on February 5, and the *Housatonic* was selected as the new objective. For several evenings Dixon took bearings on the *Housatonic* after she had taken her station for the night and found the Federal frigate was within range. The *Housatonic* was a large obstacle to the passage of the Confederate blockade runners, due to her anchorage in the North Channel opposite Breach Inlet.

Finally, on the evening of February 17, 1864, the conditions seemed very favorable to Dixon for an attack. The full moon and cloudless sky were over balanced by the favorable factors of a slight mist, no sea, and a very light wind.

The *Hunley* left shortly after sundown and proceeded at her top speed of four knots toward the *Housatonic*. The light mist hid the movement of the submarine but it did not hide the lofty spars of the enemy from Lieutenant Dixon.

Acting Master John K. Crosby was the officer of the deck aboard the *Housatonic* when, about 8:45 P.M., he spotted a ripple of water in the distance. He called the quartermaster, who examined the ripple and stated that it was a school of fish. Meanwhile, the *Hunley* continued to close the enemy at conning tower depth, and Crosby, believing this to be a drifting mine, had the alarm sounded.

When Captain Charles W. Pickering had reached the deck, the object was very close by and headed for the stern of his ship. The phosphorescent glow caused by the motion of the submarine was clearly visible, but nothing could be seen of the craft except two protuberances. The object came closer.

Just before the submarine struck, and as the *Housatonic* was getting under way, the Federals realized that they were being attacked by a torpedo boat. Rapid musket fire was directed at the boat, but it had little effect. The explosion came almost immediately after the impact, carrying away the whole stern of the vessel. She sank immediately to the bottom while the crew found safety in the upper rigging. It is believed the exploder line becoming fouled on the *Hunley* caused the sudden explosion. The explosion made little noise since it was underwater, and it was not until daybreak that the crew was rescued from the ship. The *Hunley* was not seen afterward.

The court of inquiry found Captain Pickering of the *Housatonic* and the crew guiltless of the sinking. All lookouts had been properly stationed, and the required vigilance observed. Admiral Dahlgren wrote, when reporting the incident to Secretary of the Navy Welles, that his estimation of torpedoes had greatly increased, and he considered the presence of Confederate submarines a formidable threat.

THE *Hunley* NEVER RETURNED to its base. It was thought to have been so close by when the torpedo exploded, that it was sucked into the hole caused by the

explosion, and carried to the bottom by the *Housatonic*. Many years afterwards, it was found by divers completely clear of the wrecked frigate. The force of the explosion probably caused the *Hunley* to pitch and roll to the extent that water from the ballast tanks emptied into the central section, where it was out of reach of the pumps. Any additional water taken aboard would give the boat the negative buoyancy it needed to sink to a depth where the pumps would be useless. The hull was in good condition when found.

The action of the *David* and the *Hunley* did not cause any tremendous change in the outcome of the war. The sinking of the *Housatonic* and the neutralization of the *Ironsides* had an apparent psychological effect on both the people of Charleston and the blockading fleet of Federals anchored in the harbor. It surely contributed to delaying the fall of Charleston and to some extent preventing Charleston from falling to the Federal Navy.

The *Housatonic* is recorded in historical annals as being the first and only ship sunk by a submarine until the advent of World War I. [In her attack on *Housatonic*, Lieutenant Dixon used the boat as a surface craft, low in the water, in the manner of a *David*, and also similarly carrying a spar torpedo projecting forward from the bow.—ED.]

The Daughters of the Confederacy erected, in tribute and acknowledgment of the sacrifices given, a huge granite block, on Meeting Street in Charleston on which the following is written:

"In memory of the supreme devotion of those heroic men of the Confederate Army and Navy, first in marine warfare to employ torpedo boats."

Moved by the lofty faith that with them died, crew after crew volunteered for enterprises of extremest peril in defense of Charleston harbor."

MAP OF Charleston Roads indicates where Federal ships *New Ironsides* and *Housatonic* were struck by torpedoes.

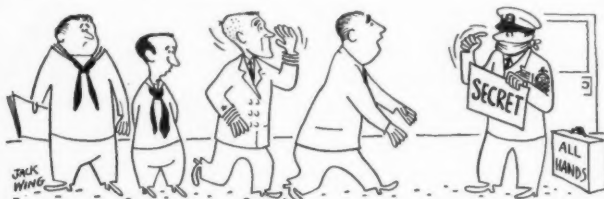


TAFFRAIL TALK

LIKE MOST NAVYMEN, ALL HANDS staff members have many serious interests outside their working hours. E. E. Nichols, JO3, finds a change of pace from his cartoons and illustrations through his study of art. This paid off recently when his "Nuun-anu Canal" won first place in the water color division of the BuSandA third annual art exhibit. A drawing of his, "Space Complexity," was earlier hung at the Corcoran Art Gallery's tenth annual area exhibition.

★ ★ ★

We hope that the deep enthusiasm felt by Bob Ohl, JOC, upon his return from the Nuclear Power School, New London, Conn., shows through in its final form. He's an enthusiastic, volatile soul under the quietest of circumstances, but the entire office shook with his glowing adjectives when he attempted to describe his experiences. If he had his way, the entire issue would have been devoted to his pet project. Fortunately, perhaps, for the balance of the magazine, the attached illustration best depicts his dilemma.



There must be something about fresh, cool air that helps stimulate the verbal glands. The *Adak Sun*, station newspaper of U. S. Naval Station, Adak, for example, boasts it is "From the wind-kissed playground of the Bering Sea." *Snow News*, ship's paper of *uss Thomaston* (LSD 28) whose playground is also the Bering Sea states with engaging frankness, "It may not be much, but *Snow News* is better than no news."

Not precisely great literature, but refreshing.

★ ★ ★

Names, they say, make news. As has been recorded earlier in this space, they also sometimes make for confusion. For a while, instructors and petty officers of Company 136, NTC Bainbridge, had a hard time with their Kings. Two of them, in fact. First names of both: Thomas Joseph. Both enlisted the same day, both were born in March, have the same religion, their mothers are both named Mary, both earlier worked for electric companies, both have a musical background.

The service numbers are different. This was more appreciated by King 902 than King 401 when their dental records became confused because of the similarity of names.

Before their mutual Bainbridge experience, neither had met.

★ ★ ★

We also feel constrained to point out that January appears 12 months of the year on the monthly watchbill aboard *uss El-dorado* (AGC 11). The reason? January is not only a month but is also the name of quartermaster striker Allen R. January, SN. He was born in January and enlisted in January.

The All Hands Staff

ALL HANDS

THE BuPERS INFORMATION BULLETIN

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In most instances, the circulation of the magazine has been established in accordance with complement and on board count statistics in the Bureau, on the basis of one copy for each 10 officers and enlisted personnel. Because intra-activity shifts affect the Bureau's statistics, and because organization of some activities may require more copies than normally indicated to effect thorough distribution to all hands, the Bureau invites requests for additional copies as necessary to comply with the basic directive. This magazine is intended for all hands and commanding officers should take necessary steps to make it available accordingly.

The Bureau should be kept informed of changes in the numbers of copies required; requests received by the 20th of the month can be effected with the succeeding issues.

The Bureau should also be advised if the full number of copies is not received regularly.

Normally copies for Navy activities are distributed only to those on the Standard Navy Distribution List in the expectation that such activities will make further distribution as necessary; where special circumstances warrant sending direct to sub-activities the Bureau should be informed.

Distribution to Marine Corps personnel is effected by the Commandant U. S. Marine Corps. Requests from Marine Corps activities should be addressed to the Commandant.

• AT RIGHT: SHUTTER-BUGS — T. J. Rittenhouse, PHAN, USN, finds one of the older inhabitants of Yokosuka, Japan, is interested in the tools of his trade during duty at Photographic Laboratory, Commander Naval Forces, Far East.

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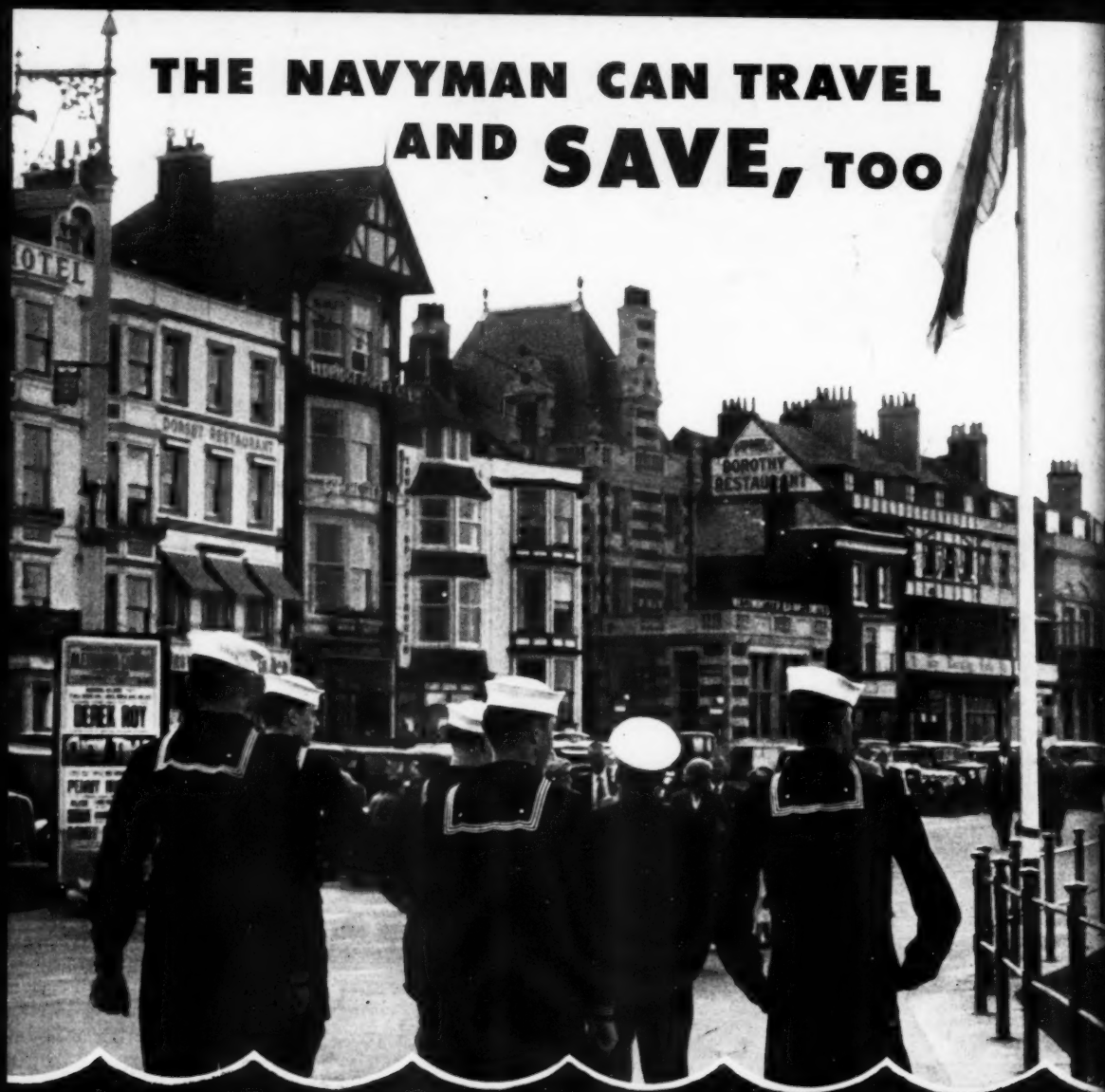
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THE NAVYMAN CAN TRAVEL AND **SAVE**, TOO



FOR A BOLDLY NEW
way to make your money work for you,
look to the Navy. The Navy has a plan
to help you save your money and
make it work for you. It's called the
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